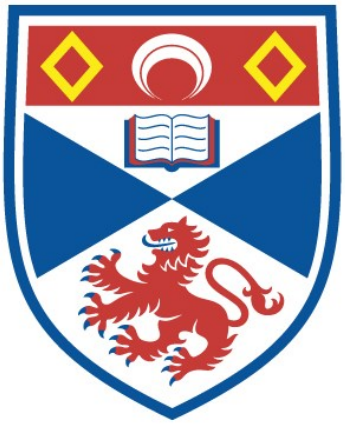
TIDES OF CHANGE : HISTORICAL PERSPECTIVES ON THE DEVELOPMENT OF MARITIME ARCHAEOLOGY

Glenn P. Darrington

A Thesis Submitted for the Degree of PhD
at the
University of St Andrews



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ABSTRACT

TIDES OF CHANGE: HISTORICAL PERSPECTIVES ON THE DEVELOPMENT OF MARITIME ARCHAEOLOGY

Maritime archaeology, as it is practiced underwater, is a widely misunderstood and controversial sub-discipline of archaeological research. Over the last fifty years this field has struggled to grow out of its professional infancy and it is only now becoming a well-established part of the mainstream. Although it has been stated that "archaeology is archaeology is archaeology," when it comes to maritime research underwater this has not always been the case. One reason for this has been the unique combination of past influences, which have helped to shape it, such as salvage, treasure hunting, sport diving, amateur archaeology, maritime history, cultural resource management, and classical studies. To address some of the problems facing the field today it is clearly beneficial to engage in a process of self-examination and awareness of its past development.

This dissertation examines four important issues currently facing the profession of maritime archaeology underwater. These include its public perception, the relationship between sport divers and archaeologists, the professional marginalization of the field, and the conflict between professional salvors and archaeologists. To provide a context for this discussion, a historical overview of the field is presented. Subsidiary topics explored include commercial historic shipwreck salvage, the role of amateur archaeologists and sport divers, professionalism, ethics, the teaching of maritime archaeology in academia, theory, historic preservation legislation and cultural resource management. Information concerning these topics was gathered using an integrated approach of literature review, internet discussion groups, personal interviews and communications, and a formal survey questionnaire. Exploring these areas facilitated a general assessment of the last 40 years of maritime archaeology underwater and the development of proposals for its future. This innovative approach into the history and attitudes of professional underwater archaeologists will hopefully

serve as a first step in a new and ongoing process, one which will benefit students, amateurs, and professionals alike.

DECLARATION

(i) I, Glenn P. Darrington, hereby certify that this thesis, which is approximately 100,000 words in length, has been written by me, that it is the record of work carried out by me and that it has not been submitted in any previous application for a higher degree.

Date June 9, 2001 Signature of Candidate.

(ii) I was admitted as a research student in February, 1997 and as a candidate for the degree of Ph.D. in May, 1998, the higher study for which this is a record was carried out in the University of St. Andrews between 1997 and 2000.

Date June 9, 2001 Signature of Candidate.

(iii) I hereby certify that the candidate has fulfilled the conditions of the Resolution and Regulations appropriate for the degree of Ph.D. in the University of St. Andrews and that the candidate is qualified to submit this thesis in application for that degree.

Date 3 July 2001 Signature of Supervisor

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CHAPTER 1: INTRODUCTION

"Good archaeology underwater could not happen until the archaeological establishment understood the potential of underwater sites, and the organization required to excavate them." (Throckmorton 1987: 13)

The past shapes the present and the future. This is an axiom beyond debate and it is here applied to the field of maritime archaeology, especially as it is practiced underwater. Although less than 50 years of age, it should no longer be considered a nascent discipline, or "new branch" of archaeology. This area of study has made significant progress since its inception, growing out of academic infancy into professional adolescence. At the beginning of the twenty-first century, it is a field that involves several hundred professional and avocational archaeologists working around the world in almost every ocean and body of water. In his plenary address for the Society for Historical Archaeology Conference on Historical and Underwater Archaeology, James Delgado presented a positive overview of the many accomplishments and milestones the field of underwater archaeology had reached (Delgado 2000). Commenting on this address George Bass wrote, " I have been asked to comment on James Delgado's paper, but after reading it half a dozen times, and thinking about it for several weeks, I have concluded that it could not be better" (Bass 2000: 29). Such reviews of past successes are both enlightening and encouraging.

But a review of maritime archaeology's past disappointments and current challenges also can be enlightening. As underwater archaeology continues to mature and expand there are many significant issues deserving attention. Popular myths and misconceptions still surround underwater research and, for most of its history, underwater archaeology has failed to achieve full integration with its terrestrial counterpart. The general public and popular media often confuse maritime archaeology underwater with the practices of treasure hunting and marine salvage. Although laws have been passed to help protect submerged cultural resources, many of these laws are being challenged in the courts, throwing the field into a confused legal

environment that is pitting professional archaeologists against professional marine salvors and the interests of sport divers. Academically, the field continues to expand, but the number of practicing underwater archaeologists seems low compared with other archaeological sub-disciplines and a career structure for students is virtually non-existent.

Another problem has emerged within the last decade that is challenging the archaeological establishment, the so-called *commercial* archaeologist. These enigmatic individuals claim they are not hunting for treasure, but instead are searching for intrinsically valuable artifacts, which are then sold to museums to underwrite the cost of the project. This has prompted debates concerning the role of museums in maritime archaeology, archaeological ethics, and what exactly defines a professional archaeologist. By portraying themselves as research-motivated instead of profit-oriented, commercial archaeologists seem to be gaining support both publicly and professionally, allowed them to acquire the necessary technologies and funding to undertake their own exploration and exploitation of historic shipwrecks in deep water.

RESEARCH AIMS AND OBJECTIVES

This dissertation identifies and examines four important issues currently facing the profession of maritime archaeology underwater as a means of assessing the last 40 years of its development and its future potential as a field of study. These include:

1. The perceptions of maritime archaeology underwater regarding its scientific relevance and public value.
2. The relationship between sport divers and underwater maritime archaeologists, and their influence on maritime heritage.
3. The marginalization of maritime archaeology underwater to the fringes of mainstream archaeology.

4. The relationship between professional salvors and underwater maritime archaeologists, which is often seen as adversarial.

These core issues are to a certain degree inter-related, representing how professional maritime archaeology underwater has developed both internally and externally. Additional secondary and tertiary themes, including such issues as professional accreditation, academic training, historic preservation legislation, the application of anthropological theory, and archaeological ethics, are also discussed.

It is argued that these issues must be dealt with concurrently if a healthy future for maritime archaeology underwater is to be assured. Development without goals is like a ship without a rudder and the direction of maritime archaeology underwater should not be left to chance. Understanding these issues more fully will help archaeologists chart a purposeful course.

Issue 1: Perceptions of Maritime Archaeology

Currently there are many different perceptions concerning the exact nature of what maritime archaeology underwater is and what defines an underwater maritime archaeologist. Confusion and misinformation have obscured public perception of the value of a shipwreck, and these prejudices have rubbed off on some archaeologists as well. When popular views of submerged historic shipwrecks are compared with perceptions of archaeological sites on land, an interesting double standard emerges. The principal value of a shipwreck is frequently assumed to lie in monetary terms, expressed as the commercial value of its cargo or contents. This is in sharp contrast to terrestrial sites, whose value is always discussed in terms of historical significance.

The mass media encourages this double standard through the overuse of the word *treasure* and by consistently confusing salvage and treasure hunting with professional maritime archaeology. In many cases the hunt for sunken treasure is

portrayed as historical research and salvors are labeled as archaeologists (Cussler and Dirgo 1996). Some public groups also criticize underwater maritime archaeologists for being exclusive, elitist, and pompous. What are the causes for these negative views towards the field, and are they justified? Have archaeologists failed to communicate effectively with the general public? What can be done to improve the situation?

Issue 2: Relationship Between Sport Divers and Maritime Archaeologists

There frequently exists what may be described as a love/hate relationship between the sport diving community and underwater maritime archaeologists. Diving on shipwreck sites is a favorite activity of many sport divers. This is clearly seen in the number of books, magazine articles, and videos dedicated to diving on wreck sites. As more historical shipwreck sites are protected, and access to them is restricted to bona fide scholars, there is a growing feeling within the sport diving community that maritime archaeologists are prohibiting and excluding them from visiting such sites. Trained archaeologists view the role of the sport diver as both a blessing and a curse. While acknowledging that sport divers are an important asset to the field, especially in the finding and reporting of unknown sites, at the same time they criticize the sport diving community for causing a significant amount of damage to historic wreck sites through direct interference or unwitting damage. The role of sport diving in maritime archaeology and its influence is an important issue because it directly affects the maritime heritage and how it is effectively protected. What should be the role of sport divers in maritime archaeology? Can damaging behavior and the practice of collecting dive trophies be changed?

Issue 3: Marginalization of Maritime Archaeology

Because maritime archaeology underwater did not develop into an academic discipline until the early 1960s it is not surprising that in some ways the field has had

to catch up with the more established mainstream of archaeology as a whole, particularly in terms of methodological and theoretical development. Since its inception maritime archaeology underwater has been viewed by many land-based archaeologists with skepticism, suspicion, and uncertainty, particularly concerning its scholarship, methodology, and contribution to a wider understanding of the past (Goggin 1960; Bass 1966).

It remains disappointingly evident that after more than 40 years of development the field still lags behind land-based archaeology in terms of funding, publication, academic programs, and career development (Bass 1998). Maritime archaeology underwater appears not to have fully integrated itself with the wider discipline by adopting a seamless approach within a common intellectual framework. Within the professional archaeological community there have been critics who blame maritime archaeologists for focusing too much on the latest technological advances and not enough on cultural processes and investigative methodologies (Goggin 1960; Bass 1983). There has also been a surprising lag in the application of theory in maritime archaeology when compared to the theoretical developments occurring in mainstream archaeology. These differences extend into the laws that help to protect and preserve cultural heritage. Why has maritime archaeology remained on the fringes of the archaeological mainstream? How can it integrate more fully?

Issue 4: Relationship Between Professional Salvors and Maritime Archaeologists

Underwater maritime archaeologists are faced with a serious problem, one that also faces land-based archaeologists, that of treasure hunting. While the practices of pot hunting and relic collecting degrade the terrestrial archaeological record, the treasure hunting of shipwrecks and the practice of marine salvage threatens to obliterate entire archaeological sites to a much greater degree. The commercial salvage of historic wrecks is a multi-million dollar industry, whose ranks include lawyers, wealthy businessmen, commercial divers, the international antiquities trade,

and even a few museums. Today there is a heated debate concerning this practice and the conflict it creates with current and proposed historic preservation legislation dealing with submerged cultural resources. This debate is made even more complex when legal issues of treasure hunting and the ownership of shipwrecked materials are added. While some archaeologists have attempted to work with marine salvors, others see them as adversaries who need to be stopped, not encouraged. Why does the practice of marine salvage of historic shipwrecks continue to exist? What are the arguments for and against the sale of antiquities? What should archaeologists do to resolve the situation in the best way? And finally, should professional archaeologists be encouraged or discouraged from working with commercial salvors of historic wreck sites, and what are the potential ramifications for the field if they do?

In addition to the issues mentioned above, this study attempts to assess the successes and failures of maritime archaeology underwater over the last 40 years. Another important subject that will be considered is the future of maritime archaeology and where, if anywhere, it seems to be headed.

METHODOLOGY

Gathering information concerning the research topics set out above, and the development of a historic context necessary for a critical discussion of them, was accomplished using an integrated strategy of data collection. This strategy involved four main components:

1. a literature review and development of a historic context
2. taped interviews and personal communications with a sample of key individuals involved with maritime archaeology, heritage management, and commercial salvage
3. a review of information resources available on the internet
4. a question-based opinion survey

Literature Review and Historic Context

Self-examination and assessment has been a continuing process in terrestrial archaeology and several historic overviews have been written over the years (for example, Clark 1978; Willey and Sabloff 1980; Daniel 1981; Sharer and Ashmore 1987; Christenson 1989). It is time for a consideration of the rationale and ethos of maritime archaeology underwater to be made within the context of a holistic discipline as well. This will help to create a context, for both current researchers and future students of the field, to understand more fully what it was, what it is today, and guide it towards a productive future.

One of the defining characteristics of any scholarly discipline is its body of published research. A review of maritime archaeology's publication record is therefore a logical first step in identifying key issues that it currently faces. The literature review undertaken as part of this study involved the examination of the main academic journals, books by practitioners, and proceedings of conferences on maritime archaeology. Professional journals and conference proceedings offer the best insight into the academic growth of a field because they include a broad selection of authors, covering several different topics and areas of research. Sources consulted as part of the literature review were *The International Journal of Nautical Archaeology (IJNA)*, *Mariner's Mirror (MM)*, *Bulletin for the Australian Institute of Maritime Archaeology (AIMA)*, *Underwater Archaeology*, and the *Proceedings from the Conference on Underwater Archaeology*. Other literary sources examined included the magazines *Diver*, *Maritime Archaeology Newsletter from Roskilde Denmark*, *Archaeology*, *British Archaeological Reports* and *American Antiquity*.

Taped Interviews and Personal Communications

The second method of data collection involved the use of both taped interviews and personal communications with individuals involved with maritime archaeology,

including professional archaeologists, commercial salvors, cultural resource managers, amateur archaeologists, and sport divers. The purpose of gathering this information was to explore issues which are rarely included in the published literature, as well as to document personal background information on a few of the field's noted experts for posterity.

Taped Interviews

The organization of taped interviews may range from rigidly standardized, in which questions (to some extent) and responses are predetermined, to completely unstructured, in which neither the questions to be asked nor the responses are determined before the interview (Selltiz et al. 1976: 309). The advantage of conducting unstructured interviews is that it allows participants the freedom to express themselves in their own words. This has the result of allowing issues to arise naturally through the interviewing process, thus helping to filter out assumptions or preconceptions that an investigator may bring to a study. For the purposes of this dissertation it was felt that this approach would be the most useful. Non-directive interviewing is a proven technique for scouting new areas of research and for determining what issues are important (Selltiz et al. 1976: 317). It is a procedure that provides a more intensive study of perceptions, attitudes, and motivations, although it precludes statistical analysis.

Because maritime archaeology has grown so expansively over the past several years, it was impractical to talk to everyone associated with the field. Given this restriction, it was decided to select a few individuals from a range of backgrounds, including academic archaeologists, cultural resource managers, and salvage professionals. Those who participated in taped interviews were chosen on a variety of criteria, some of which included their role in maritime archaeology, background, expertise, availability, and logistical viability. Five individuals were interviewed as part of this study. They were Dr. George Bass of the Institute of Nautical Archaeology

(INA), Dr. Colin Martin of the University of St. Andrews, Martin Dean of the United Kingdom's Archaeological Diving Unit (ADU), Richard Steffy, retired professor from the Nautical Archaeology Program at Texas A&M University, and Greg Stemm, co-founder of Odyssey Marine Exploration.

General topics for discussion were selected on the basis of their relevance to addressing those issues identified as a result of the literature review. These typically involved questions concerning background information, views about past failures, comments on previously published works, and feelings about the past, present, and future of maritime archaeology. After each interview was completed, a written transcript was produced and returned to the participant for comment. In some cases corrections and clarifications to the record were made by mutual agreement to produce the full transcripts set out in Appendix E.

Personal Communications

To supplement the data collected through taped interviews, discussions and correspondence with other individuals were also conducted. These were not tape-recorded and are categorized as personal communications. Conversations and correspondence ranged from lengthy open discussions to short messages requesting specific details. Individuals who provided information include Ms. Helen Albericci of the Nautical Archaeology Society; Mr. John Brandon, a historic shipwreck salvor; Dr. Ole Crumlin-Pedersen of the Center for Maritime Archaeology at the National Museum of Denmark; Mr. Jeremy Green of the Western Australian Maritime Museum; Dr. Donny Hamilton, Director of the Conservation Research Laboratory and Nautical Archaeology Program at Texas A&M University; Dr. Fred Hocker of the National Museum of Denmark; Dr. Robert Neyland of the U.S. Naval Historical Center; Mr. Ian Oxley of the United Kingdom's Archaeological Diving Unit; Ms. Veronica Robbins, the Receiver of Wreck of the United Kingdom Maritime and Coast Guard Agency; Mr. Robert Schwab, Director of Research and Project Evaluation for

Admiralty Corporation; Mrs. Taffi Fisher Abbot of the Mel Fisher Center; and Mr. Martin Woodward of the Bembridge Maritime Museum. In those cases where conversations were held, either in person or on the phone, a brief written record of conversation was made.

Internet Resources

The development of the Internet, and its widespread utilization, is allowing the dissemination of vast amounts of information. Maritime archaeology has made extensive use of the Internet through the creation of web pages related to specific research projects, academic programs, bibliographic resources, database resources, cultural resource management programs, and e-mail discussion groups. Professional salvors, sport diving groups, and treasure hunters have also heavily exploited the Internet to advertise their own activities. When examining the various sources of information concerning maritime archaeology this resource could not be overlooked. As a source of information, web pages represent a new, convenient, and cost-effective device for accessing massive amounts of data and for generating discussion. Table 1 presents a list of the Internet resources that were consulted during the course of the study.

Internet discussion lists are one of the most interactive methods of exchanging information dealing with maritime archaeology and can be an effective means of gathering data as well. A list server is simply a roster of e-mail addresses of those who subscribe to the group, defined by a shared topic of interest. Members who join the list can post e-mail messages, comments, and questions that are distributed to the entire group. Although the level of activity on list servers may vary from day to day, some discussions generate over 20 replies in a 24-hour period.

Table 1
Summary of Internet Sites Consulted

Web Site Name	Web Site Address
General Sites	
German Underwater Archaeology	http://www.museum-mv.de/uwamv/
Danish Underwater Archaeology	http://www.natmus.min.dk/nmf/indexgb.htm
French Underwater Archaeology	http://www.culture.fr/culture/archeosm/en/archeosm.htm
Maritime History Virtual Archive	http://pc-78-120.udac.se:8001/WWW/Nautica/Nautica.html
Nautical Archaeology Society	http://www.nasportsmouth.org.uk/
Nordic Underwater Archaeology	http://www.abc.se/~pa/uwa/
Sea-Site	http://www.mailbase.ac.uk/lists/sea-site/
The Society for Historical Archaeology	http://www.sha.org/
Underwater Science and Educational Resources Home Page	http://www.indiana.edu/~scuba/
Academic Programs	
Texas A&M Nautical Archaeology Program	http://nautarch.tamu.edu/naphome.htm
St. Andrews Scottish Institute of Maritime Studies	http://www.st-and.ac.uk/institutes/sims/sims.html
University of Southampton Center for Maritime Archaeology	http://cma.soton.ac.uk/
East Carolina University Program in Maritime Studies	http://www.ecu.edu/maritime/
Florida State University's Program in Underwater Archaeology	http://www.adp.fsu.edu/uwarch.html
Sport Diving Sites	
Divernet - Diver Magazine	http://divernet.com/
BSAC	http://www.bsac.com/
Cultural Resource Management Programs	
Submerged Cultural Resource Unit - National Park Service USA	http://www.nps.gov/scru/
Archaeological Diving Unit - UK	http://www.st-and.ac.uk/institutes/sims/adu.html
Salvage/Commercial/Treasure Hunting Sites	
IMACThe Institute of Marine Archaeological Conservation,LLC	http://www.imacdigest.com/
Odyssey Marine Exploration - Shipwrecks, Treasure, Gold	http://www.shipwreck.net/
Treasure Hunting Site by Mel Fisher	http://www.melfisher.com/
Maritime Museums	
Western Australia Maritime Museum	http://www.mm.wa.gov.au/Museum/toc.html
National Maritime Museum - UK	http://www.nmm.ac.uk/
Other Internet Resources Consulted	
Register of Professional Archaeologists	http://www.rpanet.org/
Insitute of Field Archaeologists	http://www.archaeologists.net/
Lacus Curtius — Pliny the Elder's Natural History	http://www.ukans.edu/history/index/europe/ancient_rome/E/Roman/Texts/Pliny_the_Elder/home*.html
The History of Herodotus by Herodotus	http://classics.mit.edu/Herodotus/history.html
Historic Diving Society	http://www/hds.org

The use of Internet list servers is a quick and efficient means of posting information to or asking questions of a wide international audience of interested individuals. It is a very economic means of distribution because there are no postage costs involved. Lastly, the convenience of e-mail encourages quick responses to queries. Two list servers, Sub-Arch and Sea-Site, were subscribed to as part of this study. Sub-Arch has a current enrollment of over 400 subscribers. It includes not only professional archaeologists, but amateurs, students, sport divers, salvors, and treasure hunters. Professionals in maritime archaeology, focusing on issues of conservation, environment, and heritage, primarily use the Sea-Site list. It currently has over 200 subscribers from across Europe, Australia, and North America.

It should be noted, however, that there are some dangers in using printed matter gathered from the Internet for research purposes. The most significant problem is the ephemeral nature of the information, and its lack of quality control and peer review. Misinformation can just as easily be disseminated to the public as reliable data. Also, the ephemeral and quickly changing nature of the Internet does not currently allow for the long-term preservation of information. Unlike an historical document or a book that is maintained in an archive or library, web pages can be, and often are, quickly modified, upgraded, or deleted. If information from a web page is used, there is no guarantee that the same data will be available for future scrutiny and use. Until there is a more substantial effort to create a system of virtual archives for computerized data, this issue will continue to be a problem. These concerns do not negate the tremendous research value the Internet has to offer, but they are factors that must be considered when evaluating the authenticity of data and its use. As with any source of information that is utilized in research, its context and limitations must be understood if it is to be used properly.

Survey Questionnaire

As a result of the literature review, interviews with noted professionals, personal communications, and review of Internet resources, several issues of interest were identified that warranted further investigation. These issues included the sale of antiquities, the impact of technology on the field, health and safety regulations, the training of graduates in maritime archaeology, the application of theory, cultural resource management, the impact of the newly proposed UNESCO legislation concerning the protection of shipwrecks, and the perception of archaeologists as a whole. To gather data concerning the attitudes of professional archaeologists towards these issues a structured survey study was undertaken. The primary motivation was to generate a record of hard data concerning the topics mentioned above. While the observations of a few noted experts is a valid basis on which to draw preliminary conclusions, a wider poll of the archaeological community allows for a more substantive analysis. To date, there have been few formal attempts to survey the field of maritime archaeology in this way and this research can therefore be considered to be an innovative approach.

The survey study involved two phases. Phase I consisted of a pilot study sent via the Internet to the Sub-Arch and Sea-Site discussion groups. The results of this 15-question e-mail survey are tabulated in Appendix A. These questions were framed with reference to the oral interviews and literature review. The questionnaire was distributed on 1 March 1999 and 36 responses were received. Based on the strength of these results and the enthusiastic interest of those who participated, it was deemed that the development of a second, more detailed questionnaire was warranted.

The Phase II survey study was designed with the assistance of Dr. Robert Prescott of the Scottish Institute of Maritime Studies at the University of St. Andrews, Mr. Martin Dean of the Archaeological Diving Unit also at the University of St. Andrews, and Mrs. Judy Dean, a professional statistician with more than 30 years

experience in the development of questionnaires. The Phase II study questionnaire consisted of 26 questions (Appendix B), which were mailed to over 200 individuals. Questions were divided into two classes, those requiring categorized answers where a series of fixed options were provided, and descriptive answers where the respondents were given the freedom to express answers in their own words.

Because the second questionnaire represented a more formal approach, it was felt that e-mail distribution and response would not be an acceptable practice as the potential for abuse could seriously bias the results of the study. One weakness of conducting a survey via e-mail is that one respondent could theoretically produce multiple copies of a questionnaire quickly, easily, and cheaply. Another constraint is that e-mails normally display the details of the sender, effectively excluding those respondents who wish to remain nameless.

A mailing list was compiled from the Register of Professional Archaeologists, the Society for Historical Archaeology, the Nautical Archaeology Society Membership Directory, and from web pages on the Internet. In addition, an e-mail inviting participation in the study was posted on the Sub-Arch and Sea-Site list servers. The primary focus group of the Phase II survey was professional archaeologists involved in maritime archaeology. Others, including sport divers, students, amateur archaeologists, professional salvors, and treasure hunters, were included as well with the aim of gathering comparative data from other involved groups. Such special-case sampling is an effective technique for generating a qualitative profile of a subject population because it involves information-rich cases and it provides a high level of credibility, even within a small sample (Patton 1987: 58). A total of 207 questionnaires were sent out, of which 93 were returned. When questionnaires are mailed to a random sample of the population the proportion of returns is usually low, varying from approximately 10% to 50% (Selltiz *et al.* 1976: 297). The response rate for this study was 44.7%, suggesting a strong interest in its subject matter. The raw data generated by the survey were tabulated using a computerized spreadsheet (Appendix C). These data

were then analyzed using descriptive statistical breakdowns (Appendix D). This information has been provided so that other researchers can undertake further analysis of these results.

It should be noted that during the Phase II survey there was a very low response from sport divers, which lessened the overall usefulness of the study. To mitigate this deficiency supplementary information from a previous survey involving the sport diving community within the United Kingdom was used (Ferrari 1994a and 1994b). In future more studies should be undertaken which examine the attitudes of sport divers from other regions of the world. Such studies will provide a much broader and practicable context for understanding the views and aspirations of this important group.

ANALYSES AND INTERPRETATION

In order to advance knowledge or address questions data must go through a two-step process of analysis and interpretation (Patton 1987: 144). Analysis is the process that brings order to the data, organizing what is there into observable patterns, categories, and basic descriptive units. Interpretation is the process that attaches meaning and significance to analysis. It involves explaining patterns and looking for meaningful relationships and linkages among the descriptive dimensions (Patton 1987: 144). Analysis and interpretation are not completely distinct and separate processes, but instead should be viewed as part of an interactive system. During data collection ideas concerning how analysis and interpretation should be undertaken can and do occur. These ideas have the potential of becoming more formal components of the analysis and interpretation process and should not be overlooked. In the initial stages of analysis, dominant patterns may emerge which strongly influence subsequent interpretation. Likewise, interpretation may suggest that some or all of the data needs further analysis to search for new patterns or to test an idea.

The use of qualitative data can be difficult because of its sometimes subjective nature and it is not without controversy, particularly with regard to what has been termed "the paradigm debate" (Guba and Lincoln 1981; Patton 1986). However, given the context in which the data from this study are being used, namely to gauge some of the general opinions of professional archaeologists and others involved in maritime archaeology, the utility of this type of information seems more than justifiable. No claim is being made that the results of this research are definitive and conclusive. On the contrary, it should be viewed as an initial step in a continuing process the objectives of which are to record and document the development of maritime archaeology and to evaluate constructively some of its perceived strengths and weaknesses, now and in the future.

During the literature review, 970 research articles published in the *IJNA*, and professional conference proceedings from 1963 to 1999 were classified into one of several different categories. The purpose of this exercise was to evaluate some of the general trends in published research over the last four decades. Twenty-one different article categories were identified during the review. While this list cannot be regarded as definitive or complete, it does provide a statistically valid indication of those topics most often addressed by maritime archaeologists over the past four decades.

1. artifact analysis or description
2. cultural resource management or regional inventories
3. conservation techniques and results
4. education and public involvement
5. ethical issues
6. descriptive summaries of site specific excavation report
7. environmental studies/geomorphology
8. maritime ethnology/ethnography/anthropology
9. historical overviews and analysis
10. legislation
11. methods of analysis
12. methods of excavation, diving, search, and survey
13. maritime people, trade, or customs
14. museums
15. synthesis and regional study

16. ship construction
17. sport diving in archaeology
18. experimental archaeology involving ship handling, replicas, or sailing techniques
19. shipwreck patterning and location studies
20. results of search and survey projects
21. theoretical issues

The analysis of the taped interviews involved reviewing the final transcripts and identifying those statements with relevance to the research issues identified by the study. In some cases, relevant statements were directly incorporated into the text of the dissertation to help support or underscore points made during the discussion. Information contained in the transcripts was also compared to data collected during the survey study, other personal communications, and the literature review.

As previously mentioned, the responses to the Phase II questionnaire were tabulated using a computerized spreadsheet program. The answers to categorized questions were processed according to the same classifications and codes used in the questionnaire. The answers to descriptive questions were read and entered in a separate text file. Each of these answers were also summarized, categorized and given a code, which was entered into the spreadsheet. If a participant provided a descriptive answer for a particular question that was similar or identical to a previous participant's answer for the same question, then it was assigned the same category code as the previous answer. In this way the frequencies of similar descriptive answers for a particular descriptive question could be calculated and compared.

Finally, a system of weighted values was used to analyze the answers for question QD13. This question asked the respondent to list the five individuals who they felt had made the greatest impact on the field of maritime archaeology as a whole. The respondents were asked to rank these five individuals in order of importance. The analysis of these results involved assigning a weighted value to each listed individual. Those listed first were given a ranking score of 5, second were given a score of 4, third

was given a score of 3, fourth was given a score of 2, and the fifth listed individual was given a ranking score of 1. This system of weighted values allows for the determination of the top five individuals listed as a whole.

CHAPTER 2: HISTORICAL OVERVIEW

"No individual, no institution, no intellectual tradition can ever fully escape from its generic forbears, and archaeology is no exception." (Willey and Sabloff, 1980: xi)

INTRODUCTION

The overview presented in this chapter is a synthesis of past historical reviews involving traditional archaeology, historical archaeology, and maritime archaeology. The works it is based on include those published by Bass (1966), Blot (1996), Clarke (1978), Delgado (1997), Fontenoy (1998), Gould (1983), Henderson (1986), Muckelroy (1978), Sharer and Ashmore (1987), Taylor (1965), Throckmorton (1987), and Willey and Sabloff (1980). In addition to these references, some primary source materials were consulted, as well as information gathered from the research questionnaire and during the oral interviews. Although of necessity selective, this historic overview identifies key developments and people in the field of maritime archaeology underwater that relate to the stated research objectives.

Most of the previous histories dealing specifically with maritime archaeology can be characterized as superficial overviews that tend simply to list developmental milestones without examining the significance of each in any great detail. To date, there has been little or no substantial publication focusing explicitly on the history of maritime archaeology. One publication that does come close is *Underwater Archaeology: Exploring the World Beneath the Sea*, first published in 1995 by the French underwater archaeologist Jean-Yves Blot, and reprinted in English in 1996. However, even this history of the subject was primarily written with a general readership in mind and it lacks the detail and critical review necessary for a more academic study.

MARINE SALVAGE IN THE ANCIENT WORLD

Salvage has been defined as either "the rendering of assistance to vessels and their cargo in distress at sea, whether afloat, shipwrecked, or submerged" (Delgado 1997: 353). It has also been referred to as the harvesting of antiquities from historic wreck sites (Lenihan 1983: 40). Although one could argue that these two activities are distinct, within the context of this early period in man's history this term is broadly understood to encompass both of these activities, since the humanistic investigation of shipwrecks had not yet been invented. In Chapter 4 the distinctions between professional marine salvage, commercial archaeology, and treasure hunting are discussed and explored in more detail.

Marine salvage is a practice that stretches back into antiquity. The first efforts of finding and exploring sunken ships were exclusively motivated by commercial interests (Lenihan 1983: 40). Although the art of diving can be traced back to the time of Homer in the eighth century B.C., the writings of the Greek historian Herodotus contain the first record of shipwreck salvage, dating back to the fifth century B.C. In Book VII of *The Histories*, Herodotus mentions a farmer named Ameinocles who recovered the treasures of a large Persian fleet that had been destroyed by a terrible storm. Herodotus writes:

> "They say that at the very least no fewer than 400 ships were destroyed in this labor, along with innumerable men and abundant wealth. This shipwreck proved useful to Ameinocles son of Cretines, a man of Magnesia who owned land around Sepia, for he later picked up many gold and silver cups cast up on shore, found the Persian treasures, and acquired other untold riches. Although he became very rich from his findings, he did not enjoy luck in everything, for he suffered greatly when his son was murdered" (Herodotus, *The Histories,* 7.190.1)

Another account can be found in Book VIII, where Herodotus describes a diver named Scyllias who was used by the Persian King Xerxes to salvage materials lost at sea. The passage states:

> "Now when they were engaged in this count, there was in the fleet one Scyllias, a man of Scione; he was the best diver of the time, and in the shipwreck at Pelion he had saved for the Persians much of their possessions and gotten much for himself in addition; this Scyllias had before now, it would seem, intended to desert to the Greeks, but he never had had so fair an occasion as now. [2] By what means he did at last make his way to the Greeks, I cannot with exactness say. If the story is true, it is marvellous indeed, for it is said that he dove into the sea at Aphetae and never rose to the surface till he came to Artemisium, thus passing underneath the sea for about eighty furlongs."
>
> (Herodotus, *The Histories,* 8.8.1)

By the first century B.C. an active marine salvage industry had developed in the eastern Mediterranean (U.S. Navy, 1998: 343). A legally binding scale of payment for salvage work was incorporated into the *Lex Rhodia*, or Rhodian Law, which reflected the increased risk of diving to deeper depths. In 3 feet of water a diver was entitled to a one-tenth share of all goods recovered; in 12 feet they were entitled to a one-third share; and in 24 feet of water, the diver could claim one-half of all salvaged materials (U.S. Navy, 1998: 344). This right of a diver to claim possession of materials recovered from the sea, regardless of their ownership or age, remains a key element of many salvage claims today.

Roman historical accounts dating to the first century AD refer to salvage divers as the *corpus urinatum*. The Ostian historian Pliny the Elder refers to the *urinates* in his *Natural History* (II: 234-237) and Livy makes reference to the *corpus urinatum*,

who helped Perseus become enormously wealthy (Kemp, 1976: 250; Oleson, 1976: 26).

Marine salvage in the ancient Mediterranean was clearly the predominant behavior that motivated man's earliest interaction with a submerged shipwreck. The fact that specific laws were enacted, regulating the amount of compensation to be awarded to salvage divers is strong evidence of this group's apparent influence and importance to those in power. Classical historians, such as Herodotus and Livy, suggest that incredible wealth could be recovered from wreck sites, a clear reflection of the economic investment in sea trade, and this lost wealth created the first and most persistent image of what a shipwreck represents, simply a cache of sunken treasure. It is this overpowering image of a shipwreck as a repository of riches waiting to be claimed by anyone that continues to affect the image of modern maritime archaeology underwater.

Salvage during this time focused on submerged shipwrecks in shallow waters that could be reached by unassisted free divers. The technology employed by these initial salvors of the not so deep consisted predominantly of ropes, hooks, and nets (Muckelroy, 1978; 10). While these tools were effective, they nevertheless were not suitable to exploit wrecks located in deeper water or in areas where visibility is poor. The salvage of deeper water wrecks had to wait for the invention of a more sophisticated diving technology.

SALVAGE DURING THE MIDDLE AGES AND THE BEGINNINGS OF ANTIQUARIANISM

The earliest recorded example of possible antiquarian interest in the maritime past comes from an eleventh century account chronicling the life of Abbot Ealdred of St. Albans in Hertfordshire (Ellmers, 1973; 177). This very brief record describes the discovery and excavation of an oared ship built of oak and containing pine oars. The boat was located while men working for Ealdred were digging in the ruins of the

Roman town of Verulamium and it is suspected that the vessel was either Roman or Anglo-Saxon in origin. While little specific information concerning this vessel has survived, the event was obviously of enough interest to warrant it being included in the recounting of Ealdred's life.

As previously mentioned, our knowledge of all maritime law begins with the *Lex Rhodia*, or Rhodian Law, which dates to the first century B.C. (McFee 1951: 37). In 530 AD, the Byzantine emperor Justinian I (c. 482-565) ordered the compilation of juristic writings, which were collectively known as the *Digest* (Watson, 1985: xi). Incorporated into the *Digest* was the Rhodian Law of Jettison, which again reaffirmed the rights of the *urinatores* to appropriate compensation for carrying out marine salvage services (Book XIV:2:4).

Although Rhodian Law took on a variety of forms as it spread throughout the Mediterranean, it remained the predominant maritime code for several hundred years. Eventually, Rhodian Law was incorporated into regional codes, such as the Laws of Oleron, enacted by Eleanor of Aquitaine in 1152. The Laws of Oleron were formally introduced into England in 1190 by Richard II and were codified in the Black Book of the Admiralty. Codification helped to legitimize and perpetuate the practice of marine salvage, which was by this time an ancient exercise. This work would eventually become the foundation for modern admiralty law in Britain (Kemp 1976: 615).

Little specific information concerning the practice of marine salvage during this period has come to light and more historical research needs to be directed in this area. It seems likely, however, that the actual methods of salvage changed very little during the Middle Ages, with skin divers employing the same tools and techniques that their predecessors had been using for thousands of years. Although there is a glimmer of antiquarianism directed towards maritime relics, it seems to be an exceptional occurrence without any emphasis or momentum. It appears that any

significant developments in either salvage or antiquarianism had to wait for the age of scientific investigation and invention to begin.

1500-1800: THE AGE OF SCIENCE, SALVAGE DEVICES, AND MARINE INSURANCE

Modern science and the scientific method may be said to have began 500 years ago with the Italian Renaissance. Although its development can be traced back several millennia to roots in the classical Mediterranean civilizations, it was not until the sixteenth and seventeenth centuries that modern Western science truly expanded with the discoveries of such famous scholars as Copernicus, Galileo, da Vinci, and Vesalius.

It was during this intellectually dynamic period that humanistic antiquarianism began, founded on the discoveries of the monuments of classical antiquity. These findings gave Renaissance scholars a comparative view of previous cultures, a view that evolved into the concept of cultural differentiation through time, the essence of archaeological investigation (Willey and Sabloff, 1980: 2). The archaeological counterpart of Copernicus and Galileo was a scholar named Michael Mercati, who lived between 1541 and 1593 (Clarke, 1978: 4). Although not an archaeologist in the modern sense, he was a brilliant naturalist who studied both minerals and fossils, initially developing a hypothesis which suggested that the use of stone, bronze, and iron came in successive ages (Clarke, 1978: 5). These observations set the stage for the subsequent birth of a more systematic approach to archaeology in the first part of the nineteenth century.

One predecessor of Mercati who was involved with what appears to be the first antiquarian exploration of a submerged vessel was the Italian architect and writer Leon Battista Alberti. In 1446, under the direction of Cardinal Prospero Colonna, Alberti searched Lake Nemi, located near Rome, for the remains of two wrecked Roman ships, which were rumored to be in the lake (Blot, 1996:14-15; Lehmann, 1991:9-11).

Free divers were brought from Genoa who "could swim like fish, diving to the bottom of the lake, could tell the size of the boats, and in how far they were intact or broken" (Biondo, 1542: 110). The expedition recovered little more than a few pieces of wood and a piece of lead pipe whose markings suggested that the wreck dated to the time of Trajan (53-117 AD).

In the sixteenth century there were two individuals who showed a scholarly interest in the ships of antiquity. The first was Vettor Fausto, who in 1529 built a quinquereme for the Republic of Venice based on a classical form (Basch, 1972: 3). The historical accounts of ancient naval battles and some ancient monuments, such as Trajan's Column with its many naval scenes, provided antiquarians of the fifteenth, sixteenth, and seventeenth centuries with a tantalizing view of the past and encouraged the study of maritime history. The second individual was involved with another attempt to investigate the Roman wrecks of Lake Nemi, this time using an early type of diving bell. Alberti's successor was Francesco de Marchi, who in 1535 is reported to have employed a portable diving bell invented by Gulglielmo da Lorena (Lehmann 1991: 10). Shaped like a tube with a small view port, this apparatus was used to survey the wreck and take underwater measurements. Unfortunately, this second expedition had little more success than the first in recovering the remains of the Roman vessels; however, it does show how new technologies were being developed to probe deeper and deeper under the surface of the water.

The diving bell was the first practical invention which allowed men to work deep underwater for hours rather than minutes. Shaped like a bell, this device consisted of a large metal receptacle suspended by a cable with its bottom open to the water. As the bell submerges the air trapped inside allows a diver to breathe and is compressed to equal the pressure of the water outside. Divers could venture outside the bell by holding their breath, the pressurized air keeping their lungs from collapsing. The first record of a diving bell device dates to just before Demarchi's

expedition at Lake Nemi to 1531 when John Taisnier sent two Greek divers down in an inverted "kettle" for Charles V of Spain (Kemp 1976: 251).

In the sixteenth century the European salvage industry experienced expansive growth. This was primarily due to the rise of Spain with its richly laden treasure fleets. The numerous losses these fleets suffered, especially in the New World, proved to be an attractive lure for ambitious and inventive minds alike. The Spanish government was particularly interested in recovering lost resources and went to great lengths to foster the practice of salvage diving through the use of Native American slave labor.

Contrary to popular belief, early salvage workers were quite efficient. In cases where the shipwreck was located at a depth of less than 15 meters (50 feet), divers could recover as much as 90% of the treasure and cargo (Muckelroy 1980: 112-113). In the early 1600s, after the Native American population had been decimated by disease and slave labor, both Spain and England began importing Negro pearl divers to salvage treasure ships (Muckelroy 1980: 113). It is estimated that between the sixteenth and nineteenth centuries Spain alone recovered more than 500 million pesos in property through the use of slave salvage divers (Smith 1988: 95).

By the seventeenth century the English had developed a very profitable salvage industry as well, called "wracking" (Muckelroy 1980:113; Jobling, 1987: 6). One of the most successful "wrackers" of the late seventeenth century was Sir William Phips. Phips was a Boston sea captain who in 1687 found the remains of a 600-ton Spanish *nao* lost in 1641 off the coast of Hispaniola (Smith 1988: 94). He was able to recover more than 26 tons of metal ingots and coins from this wreck, which would later be identified as the *Concepcion* (de Latil and Rivoire 1962: 53). The deeds of Sir William Phips were recorded in 1702 by Cotton Mather, author of the *Ecclesiastical History of New England, from its first planting in the year 1620, unto the year of Our*

Lord, 1698. Included in this account is the depiction of a "Catalan bell," which Phips employed to salvage the *Concepcion.*

As the financial gains of marine salvage increased so did the drive to develop new diving technologies that could extend the working time of divers while at the same time provide increased access to submerged shipwrecks in deeper waters. In addition to the continued improvement of the diving bell system, new diving mechanisms such as the diving barrel, the "semi-atmospheric dress," and the diving helmet, were introduced as well.

During the 1690s Edmond Halley made improvements to the design of the diving bell, which included sending down weighted barrels of air which would be discharged into the bell (Cowan 1997: 10). In 1778 John Smeaton developed a pump that was able to force air under pressure into a bell while it was submerged. This was a concept introduced almost 100 years earlier by G. A. Borelli, who pumped surface air down to a diver by means of a bellows (Kemp 1976: 252).

By the early part of the eighteenth century a type of modified diving bell was developed, the semi-atmospheric diving barrel (Bevan 1996: 60). The term "semi-atmospheric" is used to describe these devices because only a portion of the diver's body was kept at atmospheric pressure by the armored part of the suit. The arms, and later the legs, were exposed to the higher, ambient pressure of the water at depth. As the barrel was lowered deeper the pressure on the arms would increase. In cases where the depth exceeded 60 feet, the water pressure would actually impede blood circulation to the arms.

In 1715 John Lethbridge, and later in 1720 Captain Jacob Rowe, both developed a semi-atmospheric diving system that proved to be quite effective. This container was furnished with a glass view port and two holes with leather sleeves through which a diver could extend his arms to the outside. The operating time of this

device was restricted to the volume of air that was trapped inside the barrel, which could range from 10 to 30 minutes (Bevan 1996: 61: Martin 1992: 154). At the end of this time the dive barrel would be hauled to the surface and fresh air flushed inside. The effective operating depth of these devices was approximately 60 feet. Although deeper dives were attempted, they usually resulted in serious injury to the diver inside.

Lethbridge and Rowe were competitors in the salvage business and used their devices with much success. In 1728, Captain Rowe was involved in the salvage of the *Adelaar*, a Dutch East Indiaman wrecked off the coast of Barra in the Outer Hebrides (Martin 1992). In 1734, a French account describes Lethbridge working a wreck off Marseilles that involved "fishing for piasters" (de Latil and Rivoire 1962: 26). This account includes a description of Lethbridge's diving barrel, which is characterized as a "machine for fishing up guns".

By the end of the eighteenth century attempts were made to modify the diving barrel with the intention of providing greater mobility so shipwrecks could be exploited more efficiently. This was achieved by reducing the size of the barrel to a rigid cover for the head and chest alone, thus freeing the legs for walking along the seabed. One of the first devices using this design was Klingert's diving dress of 1797. Screw clamps were used to create watertight seals around the arms and legs, which maintained the atmospheric pressure around the head and chest. Hoses provided a continuous supply of fresh air from the surface. Unfortunately, Klingert's design abandoned the principle of forced air previously introduced by Borelli and Smeaton, thus significantly restricting the suit's effective diving depth.

During the seventeenth century the right to salvage a shipwreck was granted by royal commission. These commissions were based on the practice of "no cure, no pay." The two royal commissions granted to Sir William Phips, first by Charles II in 1682 and then again by James II in 1685, are prime examples of this practice. It is interesting to note that Phips sought permission to salvage a Spanish vessel from an

English monarch. It is clear that although maritime law addressed the rights of divers to claim compensation for salvaging lost cargo, it did not directly address the issue of ownership. Eventually the responsibility of granting salvage rights was delegated to the Admiralty Board, who would receive petitions by salvor to work on particular wreck sites.

The development of marine insurance, particularly during the nineteenth century, greatly encouraged the salvage industry. The Hanseatic merchants were the first to adopt an early system of insurance during the early Middle Ages; however, the first published code does not appear until the sixteenth century with the French publication of *Guidon de Mar* (McFee 1951; 207). The first extant marine insurance policy dates from 1613 for the ship *Tiger*, which sailed from London to Zantes, Patras, and Cephalonia (McFee 1951: 211).

It is a historical curiosity that a London coffee house, started sometime in the 1680s by Edward Lloyd, would evolve into a vast world-wide organization. Initially consisting of a loose association of independent businessmen, by the early eighteenth century Lloyd's Coffee House became the center of maritime business in the city of London. In 1726 Lloyd's published a remarkable periodical known as *Lloyd's List*, which presented rates of exchange, the current price of gold, stock prices, "Mr. Flamstead's Correct Tide Table," and shipping news (McFee 1951; 218). Eventually Lloyd's gained a monopoly on the insurance market and developed the organization known as Lloyd's Register of Shipping.

The impact of marine insurance on the growth of the salvage industry should not be underestimated. As the demand, value, and risk of shipping goods overseas increased, so did the need for marine insurance policies. Eventually, insuring vessels became a standard practice. When a policy was sufficiently large, underwriters would logically try to minimize their losses by employing a salvage operator. In this way, the

expansion of maritime trade and the use of marine insurance inevitably helped to encourage the growth of a commercial salvage industry.

1800-1900: SHIP BURIALS, DEANE'S DIVING DRESS, AND THE MERCHANT SHIPPING ACT

After the development of humanistic antiquarianism, archaeology separated into two distinct activities, those of scholarship and dilettantism. Antiquarian scholarship flourished across northern Europe with the work of such antiquaries as William Camden (1551-1623), John Aubrey (1626-1697), William Stukeley (1687-1765), and Rasmus Nyerup (1756-1829) (Willey and Sabloff 1980: 2). These men initiated the investigation of local earthworks and monuments, recording and publishing their observations. The dilettanti on the other hand, were antiquity hunters who worked for rich patrons, museums, or auction houses. More akin to grave robbers than scholars, the dilettanti would journey to the Classical world and Near East, bringing back pillaged treasures for sale in Europe or America.

According to Clarke (1978), the evolution of scholarly principles eventually led to the application of systematic archaeology, an early example of which occurred in Denmark in 1819. At that time J.C. Thomsen, who was working for the Royal Commission for the Preservation of Danish Antiquities, organized the Danish National Museum along the lines of the Three-Age system. Although the Three-Age system was not a new concept, evolving from the previous work of Mercati, Nyerup, and other European antiquarians of the late seventeenth and eighteenth centuries, it was Thomsen who first applied this theory to a substantial collection of artifacts, insisting that classification corresponded to a sequence of chronologically defined periods (Willey and Sabloff 1980: 3). Significant work being published in other fields of research, such as Lyell's *Principles of Geology* (1832) and Darwin's *On the Origin of Species* (1859), also contributed to the intellectual and theoretical advancement of systematic archaeology, which seems to have flourished significantly during this

period. The vast potential of the seabed to contain cultural remains was recognized during this time when it was conjectured:

> "...it is probable that a greater number of monuments of the skill and industry of man will in the course of ages be collected together in the bed of the ocean, than will exist at any one time on the surface of the Continents" (Lyell 1832: 258).

It is during the nineteenth century that the first substantial research into buried ships on land took place. Most were located in northern Europe. One of the first systematic excavations of a boat find was completed in 1863 at Nydam near Schleswig, Germany. Conrad Englehardt began the project in 1859 and it uncovered two fourth-century AD boats, one of which still survives in the Schleswig-Holsteinisches Landesmuseum (Engelhardt 1866; Christensen 1972; Delgado 1997: 300). Other important ship burials were excavated at Tune in 1867 (Shetelig 1917) and at Gokstad Farm in 1880 (Nicolaysen 1882), both situated in southern Norway. The first Viking ship ever to be found, the Tune ship, was excavated by a professor of archaeology from the University of Oslo, Oluf Rygh. Nicolay Nicolaysen, also a trained archaeologist, excavated the Gokstad ship.

The archaeological methods and techniques used to record, recover, and preserve many of these buried ships were of a very high standard. This is reflected in the publications and specimens that have endured to this day. Although it seems clear that archaeologists of the nineteenth century were aware of the historical and archaeological importance of ships and what their study could tell us about the maritime past, there was little effort made to extend their study to underwater archaeology. This is probably due to the fact that the practice of marine salvage dominated the underwater world, and this included the retrieval of historically valuable materials from wrecks that were known to be of some antiquity. The methods of excavating maritime relics from archaeological sites situated on land seems to have

had little influence on subsequent efforts by those who would investigate maritime relics underwater. The excavation of buried ships did, however, contribute heavily to the field of maritime history.

Blot (1996: 28) gives credit for the first proper investigation of an underwater archaeological site to a French banker living in Spain. In 1868 Hippolyte Magan initiated a search for a lost fleet of Spanish galleons that were sunk in 1702 and were reported to be at the bottom of the Ria de Vigo in Galicia. It seems a slight misnomer, however, for Blot to characterize this treasure salvage operation as a *proper* investigation. No trained archaeologists were involved, and although he states that all the artifacts were catalogued, the entire collection was broken up and nothing other than some photographs and sketches have survived to this day. Magan may be given credit for being an antiquarian with a vision, but it can be argued that Blot is mistaken when he characterizes the Ria de Vigo venture as archaeology instead of salvage, even by the archaeological standards of the time when compared to the investigation of buried ships on land.

It was during the first half of the nineteenth century that a diving system was finally developed which allowed divers to work much more effectively underwater. In 1823, John and Charles Deane obtained patents for a "smoke apparatus" which was designed to permit firemen to operate in a burning building. Five years later this invention evolved into "Deane's Patent Diving Dress," consisting of a large metal helmet with viewing ports, a hose connection for surface-supplied pressurized air, and a heavy diving suit. This marked a turning point in the effective use of mobile divers to work on deep wrecks for extended periods.

Due to the effectiveness of the Deane diving dress, the Deane brothers established themselves as highly reliable salvors with the Civil Engineers, the Admiralty Board, and Lloyd's Underwriters. One agent of Lloyd's, James Tayler, actually wrote a commendation for the efforts of Charles Deane in the salvage of the

sloop *Endeavour* (Bevan 1996: 72). Other vessels the Deanes worked on, with mixed results, included the *Carn Brea Castle, Boyne, Royal George, Enterprise*, and the *Mary Rose*. The Deane brothers were so well organized as salvage divers that they even produced a diver's manual in 1836.

For a professional salvor John Deane, who seemed to be more of an employee than a partner in the salvage business, displayed a strong antiquarian interest in the materials he salvaged. In 1836 he commissioned several detailed watercolors of items he had recovered for a work entitled *John Deane's Cabinet of Submarine Recoveries, Relics and Antiquities* (Blot 1996: 21). Unfortunately, this work was never published, but the watercolors survive in the Science Museum in London. This is one of the best early examples of a marine salvor viewing recovered materials not just as specie, but also as objects of historical interest. Alexander McKee (1968) gives due credit to the antiquarianism of the Deanes. When comparing their work with that carried out almost 70 years later he writes:

> " In one important respect, these operations were markedly superior to those carried out much later in the Aegean. Whereas the Antikythera project resulted from an accidental discovery, the work of 1824-1844 was deliberately planned; whereas the work at Antikythera was carried out by primitive divers ignorant of history, directed by land archaeologists ignorant of diving (a situation which still remains for much of the Mediterranean area), the earlier work was undertaken by divers who fully realized its importance, took pains to record what they found, and who, far from being sea-going peasants using diving gear which they did not wholly understand, had themselves invented the apparatus which they used..." (McKee 1968: 4-5).

By 1840 Augustus Siebe, who helped to manufacture the first Deane helmet, designed his own diving dress that included a full-length waterproof suit and an added

exhaust valve. "Siebe's Improved Diving Dress" was to become the direct ancestor of the standard deep-sea diving dress known today (U.S. Navy, 1998: 349). The development of the deep-sea diving dress was a key tool in furthering the effective salvage of previously inaccessible shipwreck sites.

Important developments in marine salvage law also occurred during this period. In 1854 the United Kingdom passed the Merchant Shipping Act (MSA). Part VII of the MSA addressed the issues of wreck, casualties, and salvage. The MSA also granted the Board of Trade Superintendents of Wreck the power to appoint a Receiver of Wreck. In 1865 the Board of Trade issued a manuscript entitled *Instructions to Receivers of Wreck and Droits of Admiralty, and to Officers of the Customs and the Coast Guard, Concerning Their Duties in Respect of Wrecks, Casualties, and Salvage* (Eyre and Spottiswoode 1865). Issued under the Merchant Shipping Act of 1854, the Merchant Shipping Repeal Act of 1854, and the Merchant Shipping Act Amendment Acts of 1855 and 1862, this historic account provides a description of the "main ingredients of a Salvage Service," which included:

1. Degree of danger the saved property was in.
2. Value of the saved property.
3. Risk incurred by the salvors.
4. Values of the salvor's property that was exposed to danger.
5. Skill shown in rendering the service.
6. Time and labor (Eyre and Spottiswoode, 1865: 31).

The current MSA is based on amendments passed in 1894 and 1906. Under this legislation the Receiver of Wreck may claim a 7.5% commission on all goods recovered (Joint Nautical Archaeology Policy Committee, 1989: 19).

Chapter 2

1900-1950: HARVESTING ANTIQUITIES AND SPORT DIVING

By the first half of the twentieth century the field of archaeology was making substantial progress towards what would become modern archaeology. It is during this time that American archaeologists, particularly those studying the New World, started to diverge from their European counterparts in the interpretation of the past. Due to the work of such noted archaeologists as Augustus Pitt-Rivers, Oscar Montelius, Christian Thomsen, Jens Worsaae, and Heinrich Schliemann, by the end of the nineteenth century European archaeology was based on a well-developed historical chronological framework (Sharer and Ashmore 1987: 49). This robust historical foundation with its wealth of written sources guided many European archaeologists to adopt a historical particularist approach to the investigation of the societies of Europe and the Near East. Old World archaeology at this time tended to focus on the humanistic concerns of art, iconography, and documentary materials (Willey and Sabloff 1980: 6). Those historical archaeologists who specialized in the investigation of the classical civilizations of the Mediterranean region and Near East (namely Egyptian, Greek, Roman, etc.) came to be known as classical archaeologists.

American archaeologists, on the other hand, who were working in the New World, started to take a more anthropological approach to interpretation. Still borrowing the principles and techniques of excavation developed largely in the Old World, this different approach to interpretation was due in large part to the relative absence of a written history. As a result New World archaeologists eventually gravitated toward the works of ethnologists, anthropologists, and linguists who could provide them with interpretive models that facilitated the investigation of Native American societies through the study of material culture, both past and present. In this way anthropology became the main vehicle for developing interpretive models, not history. This split of archaeology into either history or anthropology would have a profound impact on the debate concerning how modern underwater archaeological research should be conducted, the development of cultural resource management, and

the attitudes governing the protection of archaeological sites. Other regions of the world that lacked a significant written history and contained a native aboriginal population, such as Australia, also seem to have adopted a more anthropological approach.

Although modern archaeology was starting to take shape, the field as a whole was still endeavoring to become systematic, scientific, and consistent. There was still a wide range of variation in the application of principles and techniques, stemming mostly from the general lack of professional and academic training available. Those who can best be described as amateur archaeologists were becoming increasingly active as archaeology became more popular with the general public, but those who undertook an excavation did so with little or no training, guidance, or supervision. There still existed a fringe element which followed the path of the dilettanti, but as nations began to pass laws protecting their cultural heritage, this segment of the archaeological community eventually broke away and became a black market industry on its own. Museums in both Europe and America, either from ignorance or cynical lack of concern, sponsored projects whose main objective was to obtain specimens for display (Willey and Sabloff 1980: 79). Only the truly professional archaeologists seemed to feel the need to publish the results of their excavation and subsequent research.

One example, which typifies the inconsistent state of archaeology at this time, is the work of Edward Herbert Thompson, who in 1904 initiated the collection of Mayan artifacts from the Sacred Cenote at Chichen Itza situated in the Yucatan Peninsula. His work was sponsored by the Peabody Museum of Harvard University, which helped him to purchase the land containing the cenote (Blot 1996:34). Using a combination of dredging bucket and divers, Thompson recovered a wealth of valuable artifacts that were shipped back to the Peabody Museum and to the Field Museum of Natural History of Chicago (Erreguerena, 1997: 100). The result of Thompson's work suggests that he was more concerned with the simple recovery of artifacts than with

actually understanding what they meant and represented. The by now established principles of stratigraphy and provenance seem to have been of little importance and no clear account of his work was ever published.

This inconsistency of standards was even more common in underwater archaeological projects involving shipwrecks. In 1900, Captain Dimitrios Kondos and his crew of Greek sponge divers discovered the remains of a Roman vessel dating to the first century B.C. off of the island of Antikythera, located midway between Crete and the Greek mainland (Bass 1966: 79-83; Johnson 1997: 31; Throckmorton 1987b:14-19). Its cargo contained a large number of exquisitely preserved marble and bronze Greek statues dating to the fourth century B.C., which were bound for Rome. Included with the finds was the enigmatic Antikythera "computer." Unfortunately, the excavation of the site, which was supervised by Greek archaeologist George Byzantinos, was conducted as a marine salvage operation, with little or no application of archaeological principles. Finds were simply brought to the surface by sponge divers, who then handed them over to the archaeologists waiting on the surface. No attempt was made to map the site and very little contextual data were recorded. Much of the site's information potential was lost and the true provenance of the spectacular objects recovered must remain in question. Several decades later Peter Throckmorton (1972) noted that the recovered ship timbers were suffering from severe degradation, a reoccurring problem for most underwater excavation projects of this period.

Just a few years later in 1907 another important Roman wreck was identified and salvaged off the coast of Tunisia near Mahdia (Merlin 1911; Blot 1996:35; Hockmann 1997:254). Alfred Merlin, head of the Antiquities Service of the French protectorate of Tunisia, identified the shipwreck after noticing numerous Ancient Greek bronzes in the local art bazaars and queried local sponge divers concerning their origin. With the support of an American millionaire named James Hazen, Merlin initiated a diving operation that recovered approximately 60 capitals, plinths, and Ionic

columns. Although credit is given to Merlin for taking some notes and reconstructing a site plan from the description of the divers, no formal publication was produced.

Hockmann (1997) claims that the Mahdia Wreck was the first ancient wreck in the Mediterranean to be scientifically excavated. Philippe Diolé also considered Mahdia a milestone, stating, "Mahdia was the first instance on record of a wreck being systematically and successfully examined, the first triumph which undersea archaeology can legitimately claim." (Diolé 1952: 217). Like Blot's statement concerning the Magen operation in the Ria de Vigo, Hockmann's claim must be viewed in context. Certainly the Mahdia and Ria de Vigo projects were important milestones, but it is interesting to compare the standards and results from projects involving the excavation of buried ships on land (terrestrial maritime archaeology) with those located underwater (underwater/submerged maritime archaeology). During this period the archaeological standards for land excavations involved a close connection between the principal investigator and site, a focus on both the vessel and its associated artifacts, and the publication of results. However, in underwater excavations there seems to have been a disconnection between the principal investigator and the site, a focus only on artifacts and not the vessel, and an overall failure to publish results.

Compared to the excavations at Gokstad, Nydam, and Tune, the Mahdia expedition did not reach the same archaeological standard. The work that was carried out at Ria de Vigo, Antikythera, and Mahdia were successful attempts at salvaging interesting objects or art, but they fall just short of the minimum definition of archaeology that was successfully being met by Engelhardt, Rygh, and Nicolaysen. These projects represent a disparity in the development of maritime archaeology on land and under the water, a split that would continue until the early 1960s.

While maritime archaeology underwater continued to employ the practices of marine salvage, the excavation and study of maritime archaeology on land continued

to move forward. An increase in urban development uncovered numerous vessels and maritime features buried under cities, in old riverbeds, and within the boundaries of reclaimed tracts of land situated along the coast. In 1910 the remains of a Roman ship were discovered during the construction of County Hall in London (Marsden 1974). The vessel was fully excavated and studied in detail. This and other land excavations at Oseberg in 1904 (Brøgger and Shetelig 1971), Hjortspring in 1921 (Rosenberg 1937), Utrecht in 1930 (Vlek 1987), Kalmar Harbor in 1933 (Åkerlund 1951), and Sutton Hoo in 1939 (Phillips 1940), highlight the sharp contrast between land and sea excavations. As Blot (1996:53) points out, at sea "the most blatant area of neglect was the ship itself: a container overlooked in favor of its contents." Land excavations, on the other hand, typically did include the vessel and in some cases went to great lengths to record, conserve, and preserve them (Vlek, 1987).

These incredible finds on land continued to encourage the growth of maritime history. One milestone for the field was the creation of the Society for Nautical Research and the publication of the *Mariner's Mirror* in 1911. The Society for Nautical Research began in 1910 with the spring publication of a circular, inviting interested individuals to support the formation of a Society of Nautical Antiquaries. In addition to the large number of expected responses from seamen, other groups such as research students and academics voiced an interest in becoming involved as well. This overwhelming support from the research community prompted a change in the Society's name by replacing "antiquaries" with "research" (MM 1, 1911). The first annual meeting of the society was held on December 2nd, 1910. One interesting note contained in the first volume of the *Mariner's Mirror* is a tribute dedicated to the French scholar M. Auguste Jal, who is explicitly referred to as a "maritime archaeologist" and who is also credited with being "the first of nautical students to recognize the need for comparative study." Jal summed up the state of nineteenth century maritime archaeology by commenting that the study of vanished ships depended in large part upon "bits of debris from wrecks and pieces of text." (Blot 1996: 53). Jal seems to be one of the few archaeologists who was more interested in

the form and construction of ancient ships, instead of just looking at the cargos they carried.

The exceptional state of artifactual preservation found at Antikythera and Mahida caught the attention of museums and art collectors worldwide who sought to retrieve similar pieces for their own collections. Because the practice of treasure hunting on land was becoming banned in more and more countries, the dilettanti turned to the sea as their new hunting grounds. No longer was a bronze statue valued for its weight in recycled metal, now it was coveted for its aesthetic value and consequent sale price. The markets for Greek and Roman antiquities boomed as salvors raced to harvest the best cultural resources of the Mediterranean, resources that would be sold to the highest bidder at auction.

One positive consequence of this development was the increased interest and involvement of classical archaeologists who appreciated the archaeological value of these chance finds. Unfortunately, very few became directly involved in the process, and in those few cases where an archaeologist was present, not one is reported as being a diver. The techniques of traditional marine salvage continued to dominate the field and were employed.

During this time, the traditional salvage industry continued to expand as the recovery of lost cargo became an ever increasingly lucrative business. The general trends of increasing ship size and increased cargo value both encouraged this expansion. In 1910 the first international treaty aimed at unifying national laws relating to marine salvage was passed in Brussels (Roach 1997: 354). The 1910 Brussels Convention reaffirmed the traditional admiralty principles of the last 400 years, including the principle of "no cure, no pay." The convention also limited salvage awards to the value of the property that was saved. By setting the reward amount in this way, salvors were encouraged to focus on those cargoes which would yield the highest market value, especially in those cases where the cost of undertaking

a salvage operation were high. The 1910 Brussels Convention did not apply to the salvage of ships of war, historic shipwrecks, or vessels used exclusively for public service (Roach 1997: 354). As maritime law continued to evolve some difficult issues began to arise, specifically those dealing with ownership, jurisdiction, and the preservation of a wreck's historic integrity during salvage.

A few spectacular cases of recovered riches were able to gain worldwide media attention. From 1917 to 1924 approximately $5,000,000 in gold bullion was salvaged from the White Star liner *Laurentic*, which sunk off the entrance to Lough Swilly in Northern Ireland (Kemp 1976: 748). Another case involved the wreck of the *Egypt*, sunk in 1922 off the coast of Brittany with over 1,000 bars of gold on board valued at over two million pounds (Dugan 1956: 103). Lloyd's of London had insured the cargo and was eager to mitigate its loss. This prompted one of the most ambitious salvage operations ever attempted. Not only did the salvage crew have to contend with a wreck submerged under 360 feet of water, but they also had to blast through the ship itself to get to the gold. It took over two years to finally reach the armored compartment using a specially designed grapnel which recovered 865 bars of gold (de Latil and Rivoire 1962: 132). The wide media attention that surrounded this project is significant because it demonstrates how the general public of the time perceived the practice of marine salvage and the value of a wrecked ship.

One of the most important milestones in the history of maritime archaeology occurred near the end of this period with the invention of the aqualung or Self-Contained Underwater Breathing Apparatus (SCUBA). The development of SCUBA took place gradually over several decades, but the idea originated in the search for a new diving system that would free a diver from the limits imposed by the use of a surface-supply air hose. The most obvious solution to this problem was for a diver to carry his own portable air supply; however, it took many years to develop an air pump with the capacity and a storage tank with the strength to handle the high pressure that

was needed to provide a sufficient and sustainable air supply underwater (U.S. Navy 1998: 352).

While three basic SCUBA systems eventually evolved, a major breakthrough occurred with the development of a safe and efficient open-circuit system by Jacques-Yves Cousteau and Emile Gagnan in 1946 (U.S. Navy 1998: 354). Their diving system greatly simplified the diving process, opening up the underwater world to the general public and non-professional divers. With the commercial success of SCUBA the popular practice of sport diving was born.

The widespread use of SCUBA is a significant milestone in the development of maritime archaeology because it opened up the underwater world for the first time to a large number of people from a variety of backgrounds. Because the system was relatively safe and easy to use it soon gained in use as the general public quickly began to explore beneath the waves. Shortly after, divers started encountering the multitude of shipwreck sites that lined the coastal waters of Europe and North America. In the early days of sport diving, the practice of collecting dive trophies had a negative impact on the submerged cultural resources as shipwrecks were picked clean. Although this activity has slowly become less acceptable over the last 50 years, it remains one of the major factors that degrades the integrity of submerged sites.

The clear waters of the Mediterranean also drew hundreds of sport divers who inevitably discovered numerous historic wreck sites containing cargoes of amphora. These discoveries prompted an "amphora rush" in the Mediterranean starting in the 1950s (Blot 1996: 48). Finally, SCUBA had a significant impact on marine salvage as well. No longer contained within the sphere of an elite diving community, now amateur sport divers could claim their right to salvage, creating a multitude of small-scale, amateur salvage operators. In the longer term, however, the growth of sport diving did have a positive effect with the rise of a new class of diver, the underwater antiquarian. From its earliest days there were a few who recognized and appreciated

the historical and archaeological importance of shipwreck sites and it was these people who eventually convinced professional archaeologists that they needed to learn how to dive if they were to ever effectively carry out an adequate excavation underwater. This segment of the diving community has been a major participant in the development of maritime archaeology and continues to be so today.

The first time an aqualung was used to investigate a shipwreck was in 1948, when Captain Cousteau, Frederic Dumas, and Commandant Philippe Tailliez of the French Navy's Groupe d'Etudes et de Recherches Sous-marines (GERS) revisited the Mahdia site and retrieved two lead anchor stocks and some column shafts (Blot 1996: 47; Hockmann 1997: 254). Although it has been suggested that this was archaeological research, the methods used to recover the finds were more akin to salvage practices and the primary focus of the investigations was the recovery of the wrecked cargo with little or no concern for its provenance. This re-examination of the Mahdia wreck by Cousteau, Dumas, and Tailliez also appears to have been more about testing the newly developed aqualung and less about the study of the maritime past.

The relationship between Jacques-Yves Cousteau, Philippe Tailliez, and Frederic Dumas is an interesting one. A recent book by Trevor Norton (1999) sheds some light on these underwater pioneers, providing some insight into the attitudes these men held concerning the nature of maritime archaeology. The three met in 1939 when Tailliez introduced Dumas to Cousteau. They soon became good friends and began working on the production of an underwater film called *Par Dix-huit Metres* ("Eighteen Meters Down"), which premiered in 1942. For their next film they wanted to focus on shipwrecks and for this project they utilized the newly invented aqualung. During this time, Cousteau claimed that the three had overcome their initial feelings of "gold fever"; however, Dumas continued to collect dive trophies (Norton 1999: 224). In 1939 Dumas presented Cousteau with an amphora as a gift for his mantelpiece, an amphora that he had recovered from the seabed. Later it would be revealed that this amphora was one of a kind. It seems to be characteristic of this period that the

informational potential of rare finds was frequently overlooked because of a general unawareness of archaeological principles. There is another account of Dumas taking one of the anchors recovered from the Mahdia site, sawing it in half, and using it as a table in his garden (Norton 1999: 225). Later in his life, as he learned more about true archaeology, Dumas changed his ways and attitudes, going on to publish a few key works, working with George Bass and Peter Throckmorton at Cape Gelidonya, and encouraging the active protection of maritime heritage.

Norton offers us some interesting interpretations into the general attitudes of SCUBA divers at this time. Concerning a diving accident involving Dumas he states, "On returning to the surface he [Dumas] suffered his first dose of the bends. It would not be his last: in those days real divers had the bends for breakfast" (Norton 1999: 225). In another comment he says, "In these safety-conscious days the rule book is heavier than the weight belt, but the pioneers of diving rarely conformed to the rules" (Norton 1999: 5). These statements clearly reflect the author's interpretation that "real" divers of the period were rough, tough, bold, adventurous, reckless, pioneering non-conformists. This portrayal has become the stereotype of what a diver was, is, and should be. However, this type of *machismo* diving behavior is often incompatible with the ideal of what a scientist should be. A culture that routinely breaks the rules of science and safety cannot only be personally dangerous, but academically counterproductive as well.

In 1948 one of the first true archaeological excavations to be conducted underwater was initiated at the Roman port of Fos by Dr. Rene Beaucaire (1964). It was a project employing all the techniques of terrestrial archaeology and it was carried out to a high standard (Fontenoy 1998: 48). What also makes this a substantial step forward in the development of maritime archaeology was the fact that Beaucaire himself dived on the site and supervised the underwater excavation. Although Beaucaire seems to have been the first professionally trained archaeologist to conduct an underwater excavation, his work has largely been overlooked or forgotten in the

annals of maritime archeology. The primary reason for this has to do with the fact that Beaucaire did not publish the results of his research until many years after it was started. When a report was finally published in 1964, George Bass had already published his preliminary report on his work at Cape Gelidonya in the *American Journal of Archaeology* (Bass 1961), gaining the attention and support of National Geographic Magazine as well as of the public at large. By failing to publish his research to a broader audience Beaucaire has become forgotten. Although he should be recognized as one of the first pioneers in maritime archaeology, failure to widely disseminate his research was a setback. Research conducted in isolation has little relative value and the work at Fos, while a definite move in the right direction, did not go all the way and marked yet another false start for maritime archaeology.

1950-1960: PRE-MODERN MARITIME ARCHAEOLOGY

The true birth of modern maritime archaeology occurred in 1960 when George Bass and Peter Throckmorton conducted a three-month excavation of a Late Bronze Age shipwreck located on the south coast of Turkey off Cape Gelidonya. The years between the invention of the aqualung and this landmark event can appropriately be labeled the "pre-modern" era of maritime archaeology. During this period the field was predominantly driven by a host of sport divers, art collectors, salvors, amateur archaeologists, and non-diving archaeologists. Strangely enough, there were no trained academic archaeologists who took up diving in order to investigate a shipwreck site under the water. All of these various groups helped to set the stage for the field's real beginning. It is during this pre-modern period that maritime archaeology underwater was viewed to be at the very fringe of acceptable archaeological practice and research, lagging well behind and missing out on the intellectual and methodological changes happening in land-based archaeology.

The period from 1914 to 1960 has been termed by Willey and Sabloff (1980) as the *Classificatory-Historical Period* in American archaeology, and it seems

appropriate to extend this label to the majority of archaeological research then conducted in Europe as well. The central themes of this period were chronology, context, and function. The early part of this era saw the widespread application of stratigraphic excavation, a technique first developed in European archaeology, and the development of seriation, artifact typology, culture classification schemes, and the direct-historical approach (Willey and Sabloff 1980: 109). Later developments focused on the ideas of cultural process and the formulation of archaeological synthesis. All during this period other areas of science such as geology, botany, biology, chemistry, metallurgy, and physics were stimulating mainstream archaeology. Without question one of the most significant developments for archaeology was the creation and application of absolute dating techniques, particularly dendrochronology and radiocarbon (C-14). The use of absolute dating techniques helped to free the efforts of researchers from the fundamental issue of chronology and facilitated exploration into the more speculative regions of culture process.

In 1936 historical archaeology, an area of archaeology concerned with literate societies, became a recognized specialization within American archaeology when Jean Carl Harrington took over the excavation of Jamestown in Virginia, the first permanent English settlement in the United States, established in 1607 (Schuyler 1998:7). This sub-discipline, which stemmed from the traditions of classical archaeology, started to examine the relatively recent past from 1400 AD to the present relying on written sources of information to supplement the archaeological investigation of a site. The success of historical archaeology, and post-medieval archaeology in Europe, would eventually have a strong influence on the professional acceptance of maritime archaeology in the early 1970s. In 1967 the Society for Historical Archaeology (SHA) was established at a special international conference in Dallas, Texas. That same year the Society for Post-Medieval Archaeology (SPMA) became fully established in England, and in 1970 the Australian Society for Historical Archaeology (ASHA) was founded in Sydney.

One of the first monographic critiques of archaeology was Walter W. Taylor's *A Study of Archaeology*, published in 1948. This critique called for a change in the direction of archaeology as a whole and provided the impetus for later developments of the multidisciplinary approach, processualism, and post-processualism. In this monograph Taylor states his general dissatisfaction with the current achievements and methods of archaeology at the time. In fact, one of those he criticized was Edward Thompsen for his less than perfect work at the Sacred Cenote of Chichen Itza. According to Taylor, archaeological research should not be divided into either historiography or anthropology, but instead should incorporate both as sequent phases of a research process. He argued that archaeology needed to be concerned with more than just chronology and chronicle, but instead should include a conjunctive approach, drawing together all possible lines of investigation on a specific archaeological problem (Willey and Sabloff, 1980: 137). *A Study of Archaeology* proposed a new definition of what archaeology should be, distinguishing it from the pursuits of the antiquary, amateur, and treasure hunter. Taylor's ideas were revolutionary and controversial because many scholars at the time felt that the current level of speculation had gone too far, given the available archaeological record. Taylor was taking the position that it was not going far enough.

While mainstream archaeology was moving forward in the areas of theoretical application, cultural process, excavation, and a more multidisciplinary approach, maritime archaeology was essentially standing still. While the 1950s was a time of continued growth for the sport diving community, maritime research underwater was still clinging to the techniques of salvage to recover artifacts from the seabed. Little or no attention was paid to the principles of spatial integrity, stratigraphy, context, or cultural significance, principles that were now becoming standard practice for land-based archaeology. Conservation of submerged finds also took a back seat to expediency. Many of the projects conducted during the 1950s can be viewed as "non-professional" as the submerged archaeological record was essentially neglected by trained archaeologists who did not dive beneath the water. The state of pre-modern

maritime archaeology can be credited in part to the disinterest of the mainstream archaeological community, a community that did not fully appreciate the archaeological potential of underwater shipwreck sites. Those divers who did investigate submerged shipwrecks were more times than not untrained in the principles of archaeology, but quite fluent in the practices of marine salvage. This state of affairs seems to have reaffirmed the perception that pre-modern maritime archaeology was in fact, really only salvage (Goggin 1960).

In 1950 an Italian archaeologist named Nino Lamboglia initiated the investigation of another first century B.C. Roman shipwreck situated southwest of Genoa at Albenga. Unfortunately, instead of assembling a team of trained archaeologists, Lamboglia employed the services of the Sorima Salvage Company (Blot 1996: 46). As seen in most of the previous attempts at underwater excavation, with only a few exceptions, numerous artifacts were destroyed in the salvor's lifting bucket, no accurate mapping of the site was undertaken, and much of the information potential of the site was squandered. It seems that while the principles and techniques of modern archaeology were being successfully used on land, they were not being employed underwater. The reason for this situation lies in the fact that Lamboglia, like most of his predecessors, was not a diving archaeologist and therefore he did not have complete control of the entire project.

Two years later there were some signs that the state of underwater excavation was slowly moving forward. This time Captain Cousteau and Frederic Dumas teamed up with archaeologist Fernand Benoît to investigate a wreck site located off the coast of southern France at Grand Congloué. During the project the conflicting principles of salvage and archaeology came to a head. Cousteau is actually quoted as referring to archaeologists as "impractical pedants," and Benoît called the project "a disaster," (Norton 1999: 227; Throckmorton 1987b: 22). It seems clear that although Benoît was the supervising archaeologist, Cousteau was the one calling the shots from the start. The incompatible natures of Cousteau as a salvor and Benoît as an archaeologist

resulted in a failed opportunity for maritime archaeology to come of age (Norton 1999: 227).

Although there were major flaws in the excavation of what turned out to be more than just one shipwreck, the effective use of SCUBA diving equipment, airlifts for moving loose sediment, and balloons to lift heavy artifacts marked an improvement in the techniques of underwater excavation and opened the way for a more controlled approach later on (Bass 1966: 96; Sibella 1997: 174). Although this was definitely a step above the destructive use of traditional salvage gear, the salvage mindset of expediency still remained. Just as in the case of the Albenga wreck, the supervising archaeologist was not a diver. This created a noticeable break in the connection between the submerged site and the primary investigator, resulting in a significant misinterpretation of the wreck site. Benoit's own excavation notes reveal "We are removing things from this huge ship without knowing the basic rules of archaeology." (Blot 1996: 144).

The first conference dealing with underwater archaeology, the *Premier Congres Internationale d'Archeologie Sous-Marine*, was held in Cannes, France in 1955. Sponsored by the *Club Apin Sous Marine,* this was a significant event because it was the first attempt to organize a group of over 100 individuals who shared a common interest in underwater archaeology. It was also a step forward in ending the relative professional isolation of the field from the rest of the research community. At the meeting Nino Lamboglia set out five core questions that he felt faced the field at that time, a field which was still somewhat less than professional. These questions included:

1. Is it possible to organize underwater excavations with the same deliberation and scientific accuracy as a land excavation without exorbitant costs and means difficult to achieve in the ordinary way?
2. Are helmeted divers preferable to free-divers?

3. What is the position of the archaeologist with regard to underwater excavation, and what must be his relations with technicians and divers?
4. Is it possible, after photographing, drawing, and recording all the details underwater, to clear a wreck completely in the same way as on land, and can one observe stratigraphy?
5. Can one achieve the aim of raising a wreck to the surface with the techniques now available, and at what cost? (Taylor 1965: 190).

These five questions reflect the nascent nature of maritime archaeology underwater at this time. Looking back from the year 2000 these questions seem less problematical to address than they did 45 years ago. But what is even more telling is the fact that no one asked an even more important question, "Why would you want to?" During the 1950s it seems the field was preoccupied with problems concerning the costs of underwater excavation and the challenges of working in an underwater environment, the field methods, and not with the archaeology itself. What is also missing from these questions is a concern for the notable absence of trained archaeologists who dove.

During the second half of the 1950s the pattern of false starts continued as wrecks were ever increasingly being found, exploited, and eventually forgotten. In 1956 the wreck of the *Vasa* was rediscovered, but it would take many years before it was eventually excavated and raised. Amateur archaeologists, sport divers, treasure hunters, and those who could be appropriately term "marine adventurers" continued to dominate the investigation and exploitation of submerged sites. One example of a marine adventurer was Edwin A. Link, who in the same year the *Vasa* was found investigated the sunken city of Port Royal in Jamaica. Edwin Link, and others like him, was a wealthy businessman who used his wealth to dabble in archaeology. Link's efforts at Port Royal did recover some very striking finds, but little information was truly learned from these investigations.

Another example of a false start, but one that addressed the issue of the absence of trained archaeologists diving under the water, was the excavation of a first century B.C. wreck on the Titan reef by Philippe Taillez in 1957. In a report on the project published eight years after it was started Taillez wrote:

> "We have tried sincerely, to the best of our ability, but I know how many mistakes were made... If we had been assisted in the beginning by an archaeologist, he would surely have noted with much greater accuracy the position of each object; by personal inspection he would have drawn more information from the slightest indications." (Taillez 1965, 91)

This passage also reaffirms that the intent was honest, but the practice was lacking.

Three years after the first conference on underwater archaeology was held, a second conference, the *II Congresso Internazionale di Archeologia Sotto-marine*, was convened at Albenga in 1958. At this conference, which was sponsored by the *Institute Internationale di Stude Liguri*, Benoît made the point that underwater excavation needed to be more than simply "fishing for amphorae" (Blot 1996: 50). Although this was one step closer, these words still needed to be put into action. Benoît's comments mimic a similar frustration expounded 10 years previously by land archaeologists (Taylor 1948) and reflect the theoretical "lagging" of maritime archaeology underwater compared to the mainstream. It would be unfair, however, to criticize pre-modern maritime archaeology underwater as backward, or to characterize it not contributing to our understanding of the past. On the contrary, some very important and useful information was being gathered concerning such research topics as ship construction, ceramic typology, and maritime trade. But an important point to keep in mind is that the standard of archaeology conducted underwater was different, and in many cases during this period of time less than that held on land.

Of the 150 people who attended the *II Congresso Internazionale di Archeologia Sotto-marine*, only two were from the United States, Robert Marx, a diver, and John Huston. Today John Huston's name is not very familiar, but his efforts played an important role in the development of maritime archaeology. Although he was another wealthy adventurer who liked to "play archaeologist," he also saw the need for a more cooperative approach to the investigation of shipwreck sites. In 1959 he founded the short lived Council of Underwater Archaeology which had an advisory committee consisting of Fernand Benoit; Dr. Lionel Casson of the Classics Department at New York University; P. Deranigala, Director of the Ceylon National Museum; James Dugan, a maritime historian from Philadelphia; Edwin Link; Dr. Spyridon Marinatos, head of the Greek Archaeological Service; Luis Marden of the National Geographical Society; Dr. George Mylonas of Washington University; Pablo Romero, founder of CEDAM in Mexico; Robert Marx, diver; Mendel Peterson, Curator of Armed Forces History at the Smithsonian Institute; Dr. Froelich Rainey, Director of the University of Pennsylvania Museum; and Dr. Rodney Young, classical archaeologist also at the University of Pennsylvania (Marx 1978: vii). This council did not seem to have a high level of interaction, but it did create an early network that brought together divers, salvors, amateur archaeologists, and classical archaeologists. In fact, it was John Huston who was first contacted by a young photo-journalist who was living and diving in Greece who reported the discovery of a possible Bronze Age wreck off the southwest coast of Turkey. That young photographic journalist was Peter Throckmorton and Huston was able to put him in contact with Dr. Rodney Young at the University of Pennsylvania.

One misconception in the prevailing attitudes during the pre-modern development of maritime archaeology was that people like Cousteau, Dumas, Diolé, Benoît, Lamboglia, Taillez, and Link felt that they were pioneers of a completely new and separate discipline. What they should have seen instead was that they were the pioneers expanding an already established discipline. In essence, they were re-inventing an out-dated model of Old World archaeology that had been around for more

than 50 years, at least since the time of Pitt-Rivers, Worsaae, and Schlieman. There was little or no connection with the mainstream of current archaeological practice. Maritime archaeologists working on land in Northern Europe, on the other hand, were following the well-established principles and techniques of mainstream archaeology, as well as pioneering new ones. Building upon an already strong archaeological foundation facilitated their research projects and allowed them to avoid the mistakes being made by their underwater counterparts.

In 1959 John Goggin, a professional prehistoric and historic archaeologist at the University of Florida, presented a paper at the 24th Annual Meeting of the Society of American Archaeology entitled *Underwater Archaeology: Its Nature and Limitations* (Goggin 1960). This well-articulated assessment provides history with one documented interpretation of the state of maritime archaeology as it was at the end of the pre-modern period. Although overstating some of its weaknesses, the article does discuss some real shortcomings involving the influence of salvage, an over reliance on sport and professional divers, and a basic lack of professionalism. In his conclusions Goggin remarks:

> "A number of points can be emphasized. First, and perhaps most important is the conviction that underwater salvage and underwater archaeology are not the same thing. Probably most of what has been called 'underwater archaeology' to date is really only salvage." (Goggin 1960: 353)

In the paper Goggin encourages professional archaeologists to stress the differences between underwater salvage and underwater archaeology. He also identifies problems involving a lack of trained personnel and the overemphasis placed on the role of divers compared to archaeologists. He states:

> "The problems surrounding cultural materials underwater are just as significant as those on land and they should be handled by trained archaeologists, not by sport or professional divers... It is far easier to teach diving to an archaeologist than archaeology to a diver!" (Goggin 1960: 350)

Unprofessionalism, as was experienced at Grand Congloué, is discussed as well. After referring to Cousteau's account of a professional diver pulverizing an amphora neck to unblock an airlift intake (Cousteau 1954:13), Goggin points out:

> "Is urgency an adequate excuse for this? When not crushing up artifacts the gay divers, judging from the above account, spent much of their time playing jokes on the surface archaeologists, such as shoeblacking pots." (Goggin 1960: 349)

The bibliography of Goggin's paper is also an insightful look at the progress of maritime research. Only 19 published works were used to characterize the global nature of the entire field. It seems unlikely that this is a reflection of poor research skills, but more of an indication of the field's emergent record of published research at that time.

This article has been identified as one potential reason why maritime archaeology underwater was under-appreciated by the mainstream community (Lenihan 1983: 45). Goggin, who was a recognized authority in terrestrial archaeology, was exposing to a large group of professional colleagues the problems that generally characterized archaeological research underwater. His overemphasis on its limitations and his broad portrayal of shipwreck sites as limited to being mere repositories of well-preserved artifacts was probably a significant disincentive to those who might have otherwise considered pursuing a career as a professional maritime archaeologist. It is unfortunate that these views were based on no firsthand

experience, only what Goggin was observing in the professional and popular media (Lenihan 1983: 46). If he had been directly involved he may have been more inclined to explore the many benefits of studying the submerged archaeological record. But given the confused and problematic state of maritime archaeology during the 1950s, it is not surprising that such a pessimistic view would be adopted. Instead of serving as a constructive component in a positive process of self-reflection, this article appears to have had the opposite effect, giving maritime archaeology a negative professional perception.

CAPE GELIDONYA: A TURNING POINT

As previously stated, the real beginning of modern maritime archaeology began with the excavation of the Bronze Age shipwreck at Cape Gelidonya by George Bass and Peter Throckmorton. Both these men deserve joint credit for their momentous achievement because each required the other to succeed. It was the interaction of these two distinctly different men from quite different backgrounds that started the ball rolling in the right direction.

George Bass became involved in maritime archaeology when he was introduced to an amateur archaeologist/adventurer with a vision of what shipwrecks could provide to our understanding of the maritime past. That visionary was Peter Throckmorton. Throckmorton was first and foremost a sport diver and it was from this sphere that he came to influence maritime archaeology. Although he did have some schooling in anthropology, it was his activity as a sport diver in the Mediterranean that first led him to realize that there were literally hundreds of submerged wrecks located along the coasts of Turkey and Greece and that these represented both historically and archaeologically significant resources that were under threat from the activities of fishermen, sponge divers, and treasure hunters.

Peter Throckmorton's strength was that he was a starter, a mover, an instigator, and when he had an idea he ran with it. His weakness seems to have been that he wasn't a finisher, and typically he would move on to the next idea, adventure, or project before completing the previous one. Although he had gained some experience with archaeology while working on a neolithic site in Yokohama and had studied anthropology at the University of Hawaii, his main profession was as a photographer and filmmaker. In 1958, while he was making a film about sponge divers in south Turkey, he met Hakki Gultekin of the Izmir Museum (Throckmorton 1987b: 20). Gultekin encouraged Throckmorton to search for the find-spot of a fourth century B.C. bronze statue of the goddess Demeter, which had been recovered by a sponge fisherman in 1953 near Bodrum. It was this search for the location of the Bodrum Demeter that eventually led Throckmorton to spend the next six months diving across the eastern Mediterranean.

After two seasons in Bodrum, Peter Throckmorton was able to travel to Cape Gelidonya (Cape of the Swallows), where he was interested in relocating a wreck that was reported to contain copper ingots (Throckmorton 1987c: 24). He was successful in relocating the wreck and soon began developing plans to conduct a full-scale excavation. One of the things he lacked, however, was the backing of a research institution that could provide him with both the financing and academic credentials needed to support such a venture. In his search for this missing element he was introduced to the eminent classical archaeologist Dr. Rodney Young at the University of Pennsylvania, to whom he presented his proposal. Recognizing the merits of such an investigation Dr. Young provided funds from the University of Pennsylvania Museum, though he did not feel that Throckmorton was qualified to direct such a project himself. He therefore offered that position to one of his graduate students, George Bass.

If Peter Throckmorton had been a trained archaeologist then he might have been selected to direct the investigation, and in fact it is possible that he had every

intention of doing so. But in the end Young offered the position to Bass, who at the time didn't even know how to SCUBA dive. Given Throckmorton's lack of experience in archaeology, Bass was a logical choice. Trained as a classical archaeologist, he was familiar with the culture, history, and archaeology of the region. The fact that Bass did not know how to dive was unimportant. It soon became apparent that it was much easier and quicker for an archaeologist to learn how to dive than it was for a diver to learn about the classical archaeology of the eastern Mediterranean and the principles of professional archaeological excavation. Bass published a personal account of the circumstances surrounding the excavation, entitled *Archaeology Beneath the Sea*, in 1975.

According to Throckmorton (1987c) the breakthrough at Gelidonya was the idea that established techniques and principles of mainstream archaeology could replace the destructive techniques of salvage when excavating a shipwreck underwater. The focus of marine salvage is simply the recovery of items from the seabed. This practice, which we have seen dates back to ancient times, was by the latter half of the nineteenth century fully established as the *modus operandi* for dealing with wreck sites. The focus of archaeology on the other hand, is attempting to *understand* the site, the items that make up the site, and the relationships these may represent. Throckmorton admits that he and Frederic Dumas, who also was part of the expedition team, were unfamiliar with these notions. It was finally proven that true archaeology could replace the practice of salvage, and although it is more time consuming, the benefits of preserving a site's information potential were enormous.

So what set this project apart from the many others that preceded it? In 1967 Bass published the final report on the Cape Gelidonya project in the *Transactions of the American Philosophical Society*. Because the project was conducted as a proper archaeological investigation, Bass was able to propose a revolutionary new theory concerning the maritime activity of the Mediterranean during the Bronze Age. His theory suggested that maritime trade during the Bronze Age was dominated by Near

Eastern seafarers and not by Mycenaean Greeks, as was popularly believed by many scholars (Bass 1967 and 1972; Pulak 1997: 86). It seems unlikely that such significant information would have been gained if the wreck had been excavated using the techniques of salvage.

Because of the success at Cape Gelidonya, George Bass became the founder of modern maritime archaeology. It is a title he shares to some degree with Peter Throckmorton, but there are other reasons why he holds this place of honor in the history of maritime archaeology. First of all, George Bass learned how to dive after he became a professional archaeologist. He was unfamiliar with the techniques of salvage and the expedient nature of salvage work. To Bass, it took as long as it took, and as with any archaeological situation you had to do things slowly and methodically. This is a view with which Peter Throckmorton was unfamiliar. Secondly, Bass credits his own status in the field to the fact that he published the results of his research frequently and widely in both professional and popular media. In this respect, Bass succeeded where Rene Beaucaire had failed. Many key figures in the field today, such as Richard Steffy and Greg Stemm, have cited the articles Bass published in National Geographic Magazine as the initial reason why they became interested in the field. Stemm has commented:

> "Over the years, I think that like most young people that had an interest in archaeology or science during the 60s - I got a lot of data from *National Geographic* [Magazine], because I read the exploits of George Bass and others. George was one of my very early heroes." (Appendix E - Section V:lines 134-137)

His steady writing eventually gained him broad popularity and widespread name recognition, both inside and outside the field. The final reason for George Bass's position as founder of modern maritime archaeology is that he followed up his initial success at Cape Gelidonya with a string of other successful research projects that have

contributed greatly to our understanding of both nautical archaeology and trade in the ancient world. His later investigations at Yassi Ada, Serci Limani, and Ulu Burun kept Dr. Bass in the limelight, giving him a reputation of professional excellence. The high profile of these projects also made Bass the media's "expert" on underwater archaeology and he became the point man in the fight against treasure hunting. Ever since the Cape Gelidonya Project in 1960 George Bass has remained one of the leading figures in maritime archaeology.

One area of professional research that is frequently neglected in the publication of results is addressing the errors that were made along the way. While Cape Gelidonya was both a groundbreaking and landmark attempt at underwater excavation, it nevertheless had its share of mistakes and shortcomings. Now that 40 years have passed it seems an appropriate time to examine some of these shortcomings so that a more complete and accurate picture of the Cape Gelidonya excavation, and those that followed, can be seen. In this way the beginnings of modern maritime archaeology and its subsequent development can be better understood.

When asked about some of the mistakes that occurred in the early years, Bass is free to admit that much information was lost through ignorance (Appendix E-Section I: lines 24-32; 92-104). Amphorae were washed out because no one realized that the sediment they held could contain seeds and other remnant evidence of their contents. The techniques of conserving waterlogged materials were in their infancy and therefore inadequate measures were taken to deal with the long-term stability of artifacts. Many of the 24 ceramic oil lamps recovered from the seventh century Byzantine wreck at Yassi Ada are now badly damaged from chloride crystallization because the salts they had accumulated while being submerged were not fully removed. The wood recovered from many of the early wrecks was not conserved properly and much of it has been lost as well. Although all the artifacts were recorded extremely well, mitigating the negative impact of their loss, they nevertheless are gone for future generations to study. Bass also admits that his knowledge of ship

construction is very limited and that it would have been very beneficial to have had an expert on ship construction as part of his excavation team. Finally, some external criticism has been leveled at the early work of George Bass because he did not articulate explicit research designs for his projects, and as a result, this has weakened the overall credibility of his findings (Gould 1983b: 19). Despite these shortcomings, it must be reiterated that the resulting archaeological report of the Cape Gelidonya project and those that succeeded it, created a model of interdisciplinary scholarship and historiography for the rest of the field to follow. Finally it was proved that a shipwreck site was far more than just a helter-skelter pile of debris, and represented an orderly assemblage of archaeological data worth more than the market value of its salvaged cargo (Watson 1983: 25).

At the end of the Cape Gelidonya excavation Bass and Throckmorton fell out with one another. Although eventually reconciled, they never again worked together on the same project. Throckmorton went on to work all over the world, advocating the archaeological examination of shipwrecks. Unfortunately, he seemed to always be held back by personal problems that limited his later influence on the field (Norton 1999: 261). But it was his original vision and drive which maritime archaeology needed to get off the ground. In 1971 Throckmorton presented a paper at a conference in Bristol and in it he makes a statement that is truly insightful of his personality. He said:

> "I should explain to you why I personally am interested in maritime archaeology. I am not a classicist, nor do I have any pretensions to being an academic of any description. I am a seaman. It is the ships of the past that bring me to marine archaeology and thus to this meeting." (Throckmorton 1973:493)

Peter Throckmorton died in 1990, but his vision of maritime archaeology has become reality, and there are many professional archaeologists who feel that he was one of the most influential individuals in the field's history.

1960-1970: RAPID GROWTH AND THE CONFLICT OF IDEAS

Beginning in the 1960s mainstream archaeology started to focus more and more on cultural process in an attempt to explain past human culture and social behavior (Willey and Sabloff 1980:9). One of the leaders of this new trend was Lewis Binford and the variety of approaches which follow it were collectively termed the "new" archaeology. These more anthropological approaches heavily criticized the more traditional humanistic and historical particularist approaches of classical and historical archaeology, claiming that through positivism more worthy and valuable goals could be achieved with archaeological data. The development of middle-range theory helped to bridge the gap between the lower level of archaeological constructs and the higher level of general theory that was used to frame "big picture" questions. The application of computer technology also helped to revolutionize analytical techniques of data manipulation. But during this same period these radical changes in thinking seem to have had little or no effect on the development of maritime archaeology underwater, which clung to the archaeological traditions of the particularists.

The success of Cape Gelidonya opened the way for a quick succession of highly publicized and successful projects during the 1960s and 1970s. In 1961 Bass headed to the small island of Yassi Ada to investigate the wreck of a seventh century Byzantine ship. Over the next 14 years Bass and his team excavated three wrecks located at Yassi Ada, dating from the fourth to the sixteenth centuries A.D. During this time Bass continued to improve the techniques of underwater excavation, all the while adhering to the principles of conventional archaeology on land. In 1966 he

published *Archaeology Under Water*, the first methodological guide for underwater archaeology that was written by a professional archaeologist.

While Bass was investigating the wrecks at Yassi Ada, one of his first graduate students from the University of Pennsylvania, Michael L. Katzev, initiated the excavation of a fourth century B.C. Greek merchant vessel located off the north coast of Cyprus, near Kyrenia. The wreck site was discovered by a diver and consisted of a mound of amphorae lying on the seabed at a depth of approximately 100 feet (Katzev 1987: 55). In 1967 Katzev was invited by the Cyprus government to visit the site, and the following year began the excavation. It took eight years to raise, preserve, and reassemble the vessel, of which more than 75% of the original hull remained (Johnston 1997b: 227). The reassembly of the Kyrenia ship was conducted under the supervision of J. Richard Steffy who became involved with the project in 1970.

The Kyrenia Project is one example of how rapidly the field of maritime archaeology was growing. It clearly avoided the disasters that consistently befell the projects of the pre-modern period by employing a diving archaeologist who directed the investigation. The Kyrenia Project was also an improvement over the excavation at Cape Gelidonya in two important areas. First, the fact that a substantial proportion of the hull had survived demanded that considerably more attention be paid to properly conserving the wooden remains. Improvements in conservation techniques and materials, such as the use of poly-ethelene glycol in the conservation of the *Vasa* (see below) and their application to the Kyrenia wreck, marked a major advance over the mistakes of Cape Gelidonya. Secondly, someone familiar with naval architecture and the construction of wooden ships was brought in to help with the reassembly and reconstruction of the vessel. The task of piecing together several thousand pieces of wood proved to be a highly educational exercise, and new insights were learned concerning the use of mortise and tenon joints in the shell-first technique of building a ship's hull. But some of the success of the Kyrenia Project must be shared with George Bass, for not only was Michael Katzev one of his graduate students, but it was

his *National Geographic* article on the seventh century Byzantine wreck at Yassi Ada that caught the attention of Richard Steffy in 1963, luring him into the field. Steffy states:

> "...and studying ship construction was just an expensive hobby. I had volunteered at a bunch of maritime museums and stuff like that, but mostly I just built models at home. Then one day I read in *National Geographic* magazine that George... well it was an article written by George Bass on the excavation of the Yassi Ada Byzantine ship, the seventh century ship, and it was really fascinating. He talked about how they were using SCUBA gear and it kind of got me excited because I saw terrific possibilities for looking at ancient ship construction, which had always puzzled me, but there was no way of... there wasn't much written about it. So I went to see George because I had more questions than answers from the article. I lived in Pennsylvania Dutch country in those days, I was only 60 miles from George and I went down to the University of Pennsylvania and saw him. Well, to make a long story short, I suggested models to maybe learn more about the timbers they found down there, as research tools. George put me in touch with Fred [van Doorninck] and we've been together ever since." (Appendix E - Section IV: lines 19-38)

Before joining Bass's team Richard Steffy was part owner in an electrical contracting company with a keen amateur interest in wooden ships and their construction. As a hobby he built many wooden ship models at home. When he read the article by Bass he immediately saw the potential of maritime archaeology to address the many questions he had concerning ancient ship construction. Steffy suggested to Bass that through the use of reconstructive models more could be learned from the partial remains of sunken shipwrecks. George Bass put Steffy in touch with Frederick van Doorninck, who at the time was trying to reconstruct the seventh century

Yassi Ada wreck graphically. Steffy quickly pointed out that one of the limitations of a reconstructive model drawn on paper is that it does not necessarily have to conform to the laws of physics. By building a 1:10 scale wooden model, you would learn what was possible and what was not.

Outside the Mediterranean important developments were taking place in Northern Europe and Australia. In 1961 the complete hull of the *Vasa*, a 64-gun Swedish man of war that had sunk in 1628 was lifted from the sea floor (Kvarning 1997: 454). This large ship had been relocated in 1956 by an amateur archaeologist, Anders Franzen, who found the wreck using a core-sampler. As with many of the Scandinavian projects that preceded it, there was a deep appreciation for the vessel itself and of its historical value instead of its market value. An experienced salvage company, under the control of an archaeologist, was used to raise the vessel intact. Once in dry dock the archaeological excavation of the interior was initiated under the supervision of Per Lundstrom. Because of its incredible level of preservation and striking features, the *Vasa* project gained worldwide media coverage and stimulated an increased interest in the maritime past. Such a magnificent structure demanded a serious conservation effort if it was to be preserved and much research was put into developing new and effective conservation techniques, especially concerning the preservation of water logged wood.

The following year another incredible find was excavated in Denmark. Five Viking vessels dating to the eleventh century were recovered from part of a blocked seaway at Skuldelev in the Roskilde Fjord. (Olsen and Crumlin-Pedersen 1967; Bill 1997: 388). Initially found in 1957, the ships were excavated under the direction of Dr. Olaf Olsen of the Danish National Museum using a cofferdam and semi-wet excavation techniques. The reconstruction of the Skuldelev vessels required the expertise of someone familiar with the techniques of ship construction. Unfortunately, there was no historian or archaeologist at the time who had this type of knowledge. Salvation came in the form of a student of naval architecture who also had an amateur

interest in the construction of medieval ships. In 1962, Ole Crumlin-Pedersen joined the National Museum's Department of Medieval History to work with Dr. Olsen on the study, reassembly, and reconstruction of the Skuldelev ships. Like Richard Steffy, he was a pioneer in the study of wooden ships. Crumlin-Pedersen's unconventional background in naval architecture brought a fresh eye to the problems of maritime archaeology and he eventually became one of the field's leading figures. The recovery and study of these vessels eventually led to the creation of the Danish National Museum's Institute of Maritime Archaeology in 1964. Because the actual excavation of both the *Vasa* and the Skuldelev vessels took place above water, they followed more closely the traditions of land-based archaeology. However, Crumlin-Pedersen did recognize the importance of coming eye-to-eye with the archaeological remains before they were raised off the seabed, and to this end he learned how to SCUBA dive.

In Australia, the development of maritime archaeology began in 1963 with the discovery of two Dutch East Indiamen, the *Vergulde Draek* and the *Batavia* (Henderson 1986:69). The destructive hunt for treasure, which quickly followed the discovery of these sites, prompted the Western Australian Museum to press the state of Western Australia to pass protective legislation specific to historic shipwrecks. At that time any shipwreck, historic or modern, had to be declared to the Receiver of Wreck as was required by the Navigation Act of 1912 for commonwealth governments. The provisions of this act dealing with shipwrecks and salvage were derived from the United Kingdom's Merchant Shipping Act of 1894. The situation in Australia proved that the MSA was completely inadequate to deal with the issue of historic ship preservation and there was a definite need for new legislation to be drawn up. In 1964 the Museum Act Amendment Act was passed, giving the Western Australian Museum authority to protect and manage the shipwrecks of the state. Although by this time Cyprus and Greece had passed acts dealing with individual items recovered from the seabed, and France had a long-standing act dating to the seventeenth century which protected some of its maritime heritage, it seems Australia was the first to pass

legislation that was created specifically to deal with the issue of historic ship preservation on the sea bed (Henderson 1986: 70).

The 1960s saw the continued attempt to establish a sustainable network of professional collaboration for the field. Although the first two conferences on underwater archaeology were landmark ones, they did have two major shortcomings. The first relates to the fact that they both occurred before the advent of truly modern-maritime archaeology. The second shortcoming is the fact that the proceedings from these conferences were never widely published. In 1961 the Council of Underwater Archaeology assisted the *Confederation Mondiale des Activities Subaquatiques* with the organization of the Third International Congress of Underwater Archaeology that was held in Barcelona, Spain (Marx 1978: vii). John Huston and the Council also participated in organizing the first American conference on underwater archaeology, which was sponsored by the Minnesota Historical Society in 1963, the proceedings of which were published that year. By this time George Bass had become a member on the board of directors for the Council. In 1965 and 1967 two more conferences were held in Toronto and Miami, but unfortunately the proceedings from these were never published. Late in 1967 John Huston died.

While the Council of Underwater Archaeology was one of the first attempts at networking within maritime archaeology, it soon failed because of a fundamental flaw in the make-up of its board. The two aspects that brought these individuals together, basically John Huston and an interest in historic shipwrecks, were also the things that drove them apart. At the other end of the spectrum there were divers and salvors who wanted to find wreck sites, dive on them, and recover treasures from the past. The attitudes of many of these individuals was reminiscent of the earlier days when the dillettanti were still considered part of archaeology and the focus of study was in the artifacts themselves. At the other end of the spectrum were the classical archaeologists who also wanted to find wrecks and dive on them, but instead of just recovering treasures of the past, they wanted to study, understand, and explain them. Where one

group saw shipwrecks for their monetary value, the other saw them for their informational value. The philosophical distance between these two groups inevitably led to conflict, as salvors accused the archaeologists of exclusion and archaeologists accused salvors and divers of destroying maritime heritage. Without John Huston to keep it together, the differences between these two groups eventually caused the network to break down, quickly reforming into two separate ideological camps that continually battled throughout the 1960s, 1970s, 1980s, and 1990s. The next substantial attempt to create a network of interested parties would not occur until the early 1970s. When it did, however, it was a network of archaeologists who felt the need to purge the treasure salvor from its ranks, and in the process ended up alienating a significant segment of the sport diving community as well. Grouping professional salvors, treasure hunters, and sport divers all together would prove to be a mistake commonly made by most professional archaeologists.

The development of maritime archaeology in the United Kingdom seemed to get off to a slower start in the 1960s than in other parts of Europe and the United States, but there were some key precursors of modern maritime archaeology at the time. The first was Joan Du Plat Taylor, who was one of the original team members of the Cape Gelidonya project. A widely experienced classical archaeologist, Taylor trained under the famous Mortimer Wheeler at the Maiden Castle excavation in the 1930s and then went on to work in Turkey and the Near East. In the 1960s she became the librarian of the Institute of Archaeology at London University and was a key figure in creating the institute's Underwater Research Group as well as becoming a co-founding member of the Council for Nautical Archaeology (CNA) in 1964. The original idea of creating the CNA came from Peter Marsden, an archaeologist then working for the Guildhall Museum. In 1960 Marsden directed the partial excavation of a Roman barge uncovered at Guy's Hospital located just south of London Bridge (Marsden 1986: 179). In 1962 he was involved with the excavation of the Blackfriars Ship located on the shore of the River Thames. Both these projects proved to Marsden that nautical archaeology could contribute a great deal to the study of the past;

however, he was also painfully aware that a double standard existed between the study of ships and the rest of archaeology. He states that in 1963:

> "the mainstream archaeological establishment in Britain, the existing museums, and the law could or would do little or nothing to ensure that such sites were properly investigated, protected, preserved, and researched." (Marsden 1986: 182).

To try to rectify this situation he contacted Joan du Plat Taylor and they both organized the first meeting of the CNA. But because Marsden was not involved with the underwater excavation of shipwreck sites his significant contributions to the study of ships located on land and in inter-tidal zones seems to have had less influence on how maritime archaeology developed under the water.

Taylor and Marsden were two of the first people in Britain to recognize that there was an important underwater archaeological resource in British waters, a radical belief for the time. In 1965 Taylor edited one of the earliest professional synthesis of underwater research entitled *Marine Archaeology: Developments During Sixty Years in the Mediterranean* (Taylor 1965). This work contains several interesting comments that provide a glimpse into the prevailing attitudes which were held at the time. But it also gives the reader a sense of the field's immense potential and the optimism surrounding its future. Two articles are particularly interesting.

In Chapter I, Frederic Dumas discusses underwater work and the problems this posed to archaeology (Dumas 1965). In it he makes a claim that by today's standards seems almost shocking. He says:

> "Amateur divers may well remain unaware of their mistakes, and repeat them in all innocence. This is a very real danger. It is axiomatic that excavation, whether on land or underwater, should be conducted

> by an archaeologist, but, since no archaeologist can be a professional diver as well, he will be at a disadvantage in marine conditions." (Dumas 1965: 16)

This view was presented only a few years after Dumas had worked with George Bass at Cape Gelidonya. He seems to be suggesting, however, that diving is such a highly specialized skill, requiring years of professional training, that it was impractical for someone to be both a professional archaeologist and a professional diver. This "myth of diving", which Bass clearly disproved, seems to be another significant reason why so many professional archaeologists were reluctant to learn how to dive. Here was one of the world's first SCUBA divers telling professional archaeologists that it couldn't be done. What is truly surprising is that this myth is still being perpetuated by many in the sport diving and professional salvage sectors today, who claim that they are the only ones with the necessary skills and expertise to work on deeply submerged wreck sites. This issue of specialization is discussed further in Chapter 5.

The second important chapter of *Marine Archaeology* is its final one, written by Taylor herself, because it was an attempt to look into the future of what she termed "marine archaeology." In her article she makes several insightful points, including: 1) the need for more underwater exploration to expand the database of shipwreck sites; 2) the development of better methods of conserving materials retrieved from a submerged environment; 3) more collaboration with other fields of scientific and historical inquiry; and the most interesting, 4) more study of submerged land surfaces that may contain ancient settlements inundated by the rise of global sea levels. This last point is thought to include prehistoric stone-age settlement sites as well as sunken harbors. In this last point Taylor indicates that there is some sort of separation from the archaeological mainstream.

She writes:

> "Work on harbors has made a beginning and is a projection of land archaeology, but another side, the exploration of submerged land surfaces in relation to ancient settlements and the rise of sea-level, has been insufficiently studied; and, though not directly connected with seafaring, is of considerable importance to the land archaeologist." (Taylor 1965: 194)

It is interesting to note the distinction Taylor makes between "land" archaeologists and those interested in seafaring. This statement, like the one made by Dumas, suggests there was a perceived separation between archaeologists working underwater and traditional archaeologists. Furthermore, both those inside and outside the profession shared this view.

From the 1970s onward the field of maritime archaeology underwater continued to undergo rapid growth in numerous countries around the world. In Japan, South Asia, the former Soviet Union, Central America, South Africa, Canada, and others, professional archaeologists started to turn their attention to the archaeological record located under the water.

1970-1980: RESEARCH INSTITUTIONS, ACADEMIC PROGRAMS, AND PROFESSIONAL JOURNALS

During the 1970s the field of maritime archaeology strove to become more professionally accepted. But as the "new" archaeology on land moved forward, the unstructured nature of professional maritime archaeology underwater, combined with the still significant influence of both salvors and amateurs, kept the field at the edge of the mainstream falling behind.

In an attempt to encourage its study, a few research institutions and academic programs were founded and the number of wreck sites being professionally investigated did increase somewhat. It was also during this time that the first major professional journals dealing with the subject of nautical archaeology were launched and professional conferences were held on a regular basis.

Because of its roots in classical archaeology and maritime history, the field of maritime archaeology in the United States inevitably became interconnected with its nearest academic relative, historic archaeology. In 1970, at the annual Conference of the Society for Historical Archaeology held in Bethlehem, Pennsylvania, one session of the meeting was devoted to underwater archaeology. Discounting the three previous meetings which were held during the 1960s in St. Paul, Toronto, and Miami, this occasion has come to mark the First Conference on Underwater (CUA) Archaeology, heralding what would become a long lasting relationship between the SHA and the CUA.

At this meeting an informal committee, consisting of Robert Wheeler, Alan Albright, George Bass, Sam Townsend, Carl Clausen, Walter Kenyon, Mendel Peterson, and George Fisher, was set up to help organize future meetings of the CUA (Marx 1978: x). This committee, whose membership was in sharp contrast with that of John Huston's earlier CUA of 1959, came to the decision that for the short term, the CUA should continue to hold joint meetings with the SHA. At the Fourth Conference on Underwater Archaeology held in 1973 in St. Paul, Minnesota, this committee became formalized and developed into the Advisory Council on Underwater Archaeology (ACUA). While this second attempt at creating a professional network was gaining momentum, it did have one significant shortfall in its early years, little or no publication of its proceedings. Fortunately, this situation was rectified in 1978 when the proceedings from the Ninth Conference on Underwater Archaeology were published (Arnold 1978). Since then, the proceedings for each year's conference have been consistently published, with only a few exceptions.

When George Bass was awarded the National Geographical Society Centennial Award in November of 1988 he stated in his acceptance speech that a common characteristic shared by himself and the other recipients of the award, who that year included such world eminent figures as Jane Goodall, Robert Ballard, Mary and Richard Leaky, Jacques-Yves Cousteau, and John Glenn Jr., was that each had created an organization which transcended the individual accomplishments of its founder. In 1972 George Bass left the University of Pennsylvania and founded the American Institute of Nautical Archaeology. He felt it was time to leave the shadow of Rodney Young and with the encouragement and financial support of numerous individuals he decided to begin his own institute. In 1976 the institute moved from its temporary base in Philadelphia to Texas A&M University where Bass, van Doorninck, and Steffy set up a course to teach nautical archaeology within the Department of Anthropology. This soon became one of the most highly recognized programs in the world that offered higher degrees in the study of maritime archaeology underwater. Although its name implies a certain emphasis on ships and seafaring, it also supported research into the study of maritime trade, conservation, and maritime communities. In 1978 the name of the institute was shortened to just the Institute of Nautical Archaeology (INA). Over the years INA and the Texas A&M University Nautical Archaeology Program have become one of the leading research centers in the study of the maritime past. The success of INA is yet another reason why George Bass holds the preeminent position in the field.

But INA and the program at Texas A&M were not the first formally recognized academic program to offer training in maritime archaeology underwater. During the 1970s the United Kingdom also became active in the field, building upon its already well-established expertise in maritime history and the study of ship burials (Fenwick 1997). However, when the full development of modern maritime archaeology underwater finally did occur in the United Kingdom, a predominant influence came from the sphere of amateur archaeology. As previously mentioned, the first pioneers of

its development were Joan du Plat Taylor and Peter Marsden. Another important development in Britain was the start of an underwater training school, started in 1965 in Swanage with the cooperation of the British Sub-Aqua Club. This program attracted a large number of sport divers who were interested in shipwrecks, but it was not a program that encouraged the professional development of the field. In fact, there were no professionally trained archaeologists in Britain who took up SCUBA diving to investigate its underwater maritime resource. While there had been a long tradition of spectacular excavations dealing with buried ships on land and within inter-tidal zones, there was little academic interest in extending maritime archaeology underwater. The future of maritime archaeology in the United Kingdom therefore came from the amateur sector in the form of Colin Martin. It would be the self-motivated efforts of this man that would eventually open the way for the creation of professional academic maritime archaeology in the United Kingdom.

Of the few pioneering figures that helped to create and develop modern maritime archaeology around the world, the story of Colin Martin is one which to date has not been widely told. His background and introduction into the field highlights a recurring theme of amateurs filling the breach created by an absence of professional archaeologists who dove, a situation that concerned Bass and others during the 1960s. In order to appreciate the various contributions of Colin Martin, the circumstances surrounding his initial involvement in the field need to be understood.

In 1960 Colin Martin was stationed in Cyprus as a member of the Royal Army Service Corps. It was during his time in Cyprus that he first learned how to SCUBA dive. Diving with the RAF Nicosia Sub-Aqua Club, Martin soon came face to face with the many shipwrecks lying on the seabed. These fascinating discoveries filled him with a deep curiosity, a curiosity that sparked an amateur interest in archaeology. After his time with the Royal Army Service Corps was finished, Colin Martin moved back to the Scottish Borders where he made a precarious living as a photo-journalist while also working at a paper company. Located next door to the paper company was

the National Museum of Antiquities of Scotland. During his lunch breaks he would often visit the museum and eventually came to know many of the people who worked there. Over time Martin combined his interest in archaeology and history with his work as a photo-journalist, specializing in popular historical and archaeological topics. While covering stories concerning various archaeological digs in Scotland he came into direct contact with a number of other professional archaeologists. One in particular, the great Romanist Sir Ian Richmond, was very supportive of Martin's interest in archaeology and encouraged it. Martin states:

> "So I was about 25. He [Sir Ian Richmond] and others, in the sort of Scottish archaeological establishment, were just very, very supportive, and nurtured my growing interest, and I became a Fellow of the Society of Antiquaries of Scotland, and I began to read more extensively as part of the research for my articles. So at this stage I was becoming very enthusiastic about archaeology, but on a very amateur level. Meanwhile, the diving I had started in Cyprus went on in parallel..." (Appendix E - Section IIIa: lines 85-91)

This support from the Scottish archaeological establishment was an important factor in helping to nurture Martin's growing antiquarian interests in a positive direction. While all this was happening, he continued to SCUBA dive and took up sport diving around the Scottish coast. He also became involved in underwater botanical research as a volunteer diver for projects conducted in Cornwall and Spain.

The catalyst which brought together all these different strands of diving, amateur archaeology, and photo-journalism happened in 1968 when he read in the *Daily Telegraph* that an underwater expedition was being organized to search for the wreck of the *Santa Maria de La Rosa*, a vessel of the 1588 Spanish Armada which was thought to be located off the southwest coast of Ireland, near Blasket Island. The news story prompted Martin to contact the organizer of the expedition, Sydney

Wignall. Wignall belonged to the same tradition of adventuring antiquaries/explorers as Edwin Link and John Huston. An eccentric individual, he had a very powerful urge to find one of the wrecks of the 1588 Spanish Armada. In 1967 Robert Sténuit, who would later salvage the wreck of the *Slot ter Hooge* (see below), was the first to find an Armada wreck in the United Kingdom when he located the remains of the *Girona*, a Spanish *galleass* lost off the coast of Northern Ireland near County Antrim (Sténuit 1972).

Martin met Wignall in the Irish town of Dingle and that evening in the pub Wignall offered the post of project archaeologist to Martin. The fact that he was an enthusiastic amateur archaeologist who could write and take photographs, as well as SCUBA dive made him, in the eyes of Sydney Wignall, the best candidate for the job. This is yet another example of an amateur filling the void created by the absence of the professional archaeological community.

Now the motivation behind the search for the *Santa Maria de La Rosa* was not purely an antiquarian investigation, as was the case with so many projects of this period. Sydney Wignall was working with John Grattan, a top navy diver, whose primary interest was in finding sunken Spanish treasure. It seems fortunate that when the partial remains of the *Santa Maria de La Rosa* were finally located there was little of any value to be found, otherwise its name may well have gone down in the history of maritime archaeology as just another treasure hunt.

Although little was found of the wreck and many mistakes were made, the *Santa Maria de La Rosa* project proved to be a highly educational experience for Colin Martin, who was actually learning the ways of underwater archaeology through direct experience. Martin continued his efforts and in 1970 decided to organize a project of his own which involved the location of another Armada wreck, *El Gran Grifón*, which was found between the Orkney and Shetland Islands on Fair Isle. By this stage, Martin was establishing himself within the ranks of the Scottish

archaeological establishment, which seemed much more accepting of him than the American archaeological establishment was of George Bass. In fact, it is quite interesting that Colin Martin was actually more closely associated with the land-based archaeological community than with the fast growing underwater archaeological community which was centering around Joan du Plat Taylor in the south. Key figures in land archaeology, such as Dr. Kenneth Steer of the Royal Commission on Ancient and Historical Monuments of Scotland, were major supporters of Martin's work and this created a positive environment for him to continue his underwater investigations. In the south of Britain, however, there were many salvors and sport divers who were portraying themselves as underwater archaeologists, when in fact, they were conducting themselves in a manner which put them at the very periphery of respectability. And there were others who actually crossed the line of proper archaeological conduct. Colin Martin seems to have been an exception to the rule for amateur underwater archaeologists because his primary intent was to learn something meaningful and this motivation gave him credibility and acceptability.

One of the other key elements of Colin Martin's success as a maritime archaeologist was his consistent pattern of quality publication. This trait, which was shared with George Bass and Ole Crumlin-Pedersen, allowed the professional side of the field an opportunity to become familiar with him and his work. In 1972 the Council for Nautical Archaeology launched the *International Journal of Nautical Archaeology and Underwater Exploration* (IJNA), a new professional journal that dealt specifically with maritime archaeology. This new journal gave maritime archaeologists the forum they needed to present the results of their research to both the professional research community and the general public. More importantly, it immediately became one of the first platforms for the process of peer review, a critical element in the scholarly development of any discipline. By encouraging a peer review process the IJNA helped to increase the professional acceptability of maritime archaeology within the mainstream archaeological community and it helped to raise the level of academic research standards. Finally, the IJNA became an important

vehicle for promoting the preservation of submerged archaeological sites. In the forward of Volume I, the then chairman for the Council of Nautical Archaeology wrote:

> "The Council for Nautical Archaeology (CNA for short) has set itself the task of protecting ancient wrecks by changing the law and therefore must also do all it can to educate the public by publishing the results of research in a scholarly, informative and easily accessible manner. Hence the new journal." (Naish 1972: i)

The first editor of the IJNA was Joan du Plat Taylor who divided it into various sections covering general research, short communications, technical communications, news, book reviews, progress reports on active projects, and letters to the editors. The topics discussed in this first issue predominantly focus on descriptive excavation reports, historical accounts, and field methods particular to underwater sites. Later issues would include other topics such as artifact analysis and conservation techniques. Although there is a noticeable lack of articles dealing with such subjects as theory, legislation, heritage management, maritime culture, and regional synthesis, they nonetheless can be found early in the literature.

Included in the first issue of IJNA was one of Colin Martin's first professional articles that dealt with his investigation of *El Gran Grifón* (Martin 1972). The following year a paper Martin had presented at the Twenty-third Symposium of the Colston Research Society, which was held at the University of Bristol in 1971, was published in the book *Marine Archaeology* (Blackman 1973; Martin 1973). This paper dealt with the *Santa Maria de La Rosa* expedition. And finally in 1975 he published his own book, *Full Fathom Five: Wrecks of the Spanish Armada* (Martin 1975). This tendency for frequent and consistent publication helped to increase both his name recognition and his reputation as a serious archaeologist. It was only when he began to publish the results of his work that Colin Martin crossed over from being

an amateur archaeologist to become a professional one. This was quite an achievement for a man who had no academic credentials or qualifications at the time. His work experience, self-education, self-motivation, and consistent record of publication eventually lifted Colin Martin to become one of the top maritime archaeologists in the world.

In 1973, while he was investigating the wreck of the *Adelaar* (see above), Colin Martin was invited by the University of St. Andrews in Scotland to set up a research institute for maritime archaeology, which came to be initially known as the St. Andrews Institute of Maritime Archaeology. In 1974 a young research assistant from Cambridge named Keith Muckelroy joined Martin at St. Andrews. Although he died tragically in a diving accident at Loch Tay just six years later at the young age of 29, Muckelroy succeeded in making a permanent name for himself within the field of maritime archaeology.

The working relationship between Colin Martin and Keith Muckelroy proved to be quite a dynamic one. On the one hand was Martin who was a self-taught archaeologist with no academic qualifications but an accomplished researcher deeply rooted in the practical application of archaeology underwater. On the other was Muckelroy, who came from a very academic background, achieving a double first while at Cambridge. His interest in shipwrecks was directed more towards the theoretical and analytical. One of Muckelroy's mentors at the Department of Archaeology at Cambridge University was Dr. David Clarke, who in 1968 published *Analytical Archaeology*, a landmark book in the theoretical development of mainstream archaeology. Clarke obviously had a very profound influence on Muckelroy's views towards what archaeological research should be and he applied these views to maritime archaeology. During his three years at St. Andrews Muckelroy worked on one of the most significant pieces of research in the early development of the field, *Maritime Archaeology*, published in 1978. This was the first substantial attempt to address the issue of theory in the field and in it Muckelroy

proposed several new models for interpreting data recovered from shipwreck sites. A more detailed discussion of Muckelroy's contribution to the theoretical development of maritime archaeology is presented in Chapter 3.

Although there was some friction between Martin and Muckelroy, which is entirely understandable given the differences in their backgrounds, Martin does feel that both benefited a great deal during their time together at St. Andrews. In the one direction you have Muckelroy introducing Martin to new ways of interpreting the archaeological record. In the other direction you have Martin helping Muckelroy to appreciate the more practical side of archaeology as it is actually conducted in the field. At times Martin would act as a grounding wire when Muckelroy tended to be too theoretical. These kind of relationships, like Bass and Throckmorton, while very dynamic and beneficial, are nonetheless not very long lived.

In 1977 Muckelroy left the University of St. Andrews to study for a Ph.D. at Cambridge. At the same time he joined the National Maritime Museum's Archaeological Research Center (ARC), which was founded in 1971 (McGrail 1980: 276; Fenwick 1997: 439). The National Maritime Museum in Greenwich played a major role in the development of maritime archaeology on land, though it largely avoided the issue of research conducted underwater. Basil Greenhill, the museum's director, and Sean McGrail, chief archaeologist of the ARC at the time, were both key figures who significantly contributed to maritime research. Over the years the National Maritime Museum sponsored several symposia on the topic, bringing together researchers from across Europe. One of the most significant of these was held in 1976, and dealt with the subject of "boat" archaeology (McGrail 1977). This conference marked an early attempt at making the study of boats more scientific, particularly by encouraging more experiments in the construction and handling of vessels and in the conservation of waterlogged materials.

One of the United Kingdom's most ambitious underwater archaeological projects was the discovery, excavation, and raising of one of Henry VIII's flagships, the *Mary Rose*. Lost in 1545, and partially salvaged by the Deane brothers in the 1830s, the investigation of the wreck began in 1965 by Alexander McKee (McKee 1972). Although he was the man with the original vision and desire to find this wreck, once it was actually relocated, the responsibility for recording it was given to Margaret Rule, a practicing archaeologist who learned how to dive in order to conduct the project (Rule 1982; Martin 1987: 142). When the initial assessment was complete, the excavation of the wreck's contents was carried out in the 1970s. After the completion of this, it was decided that the hull of the vessel should be raised, which was successfully done in 1982. Since then, more than 22,000 registered finds, as well as the hull itself, have been undergoing an intensive process of recording, conservation, and analysis (Rule 1997: 265).

In Australia, the development of modern maritime archaeology continued to be influenced by the Western Australian Museum. Although the Museum Act of 1964 was a substantial move forward in protecting Australia's maritime heritage it did not require the creation of a specialist management agency that would promote the study, preservation, and conservation of shipwreck sites. This changed in 1970, however, when the University of Western Australia discovered that the wreck of the *Batavia* was still being ravaged by looters despite the passage of the 1964 act. This prompted the Western Australian Museum to challenge the Government to either substantially increase its financial support of submerged cultural resource management, or scrap the existing legislation altogether. Wisely, the Government decided to support the museum, a decision that helped to promote substantial growth for the field of maritime archaeology throughout the 1970s (Henderson 1986: 73).

In 1973 additional legislative modifications were made in Western Australia with the aim of divorcing the preservation of shipwrecks from the Navigation Act. This new legislation, the Maritime Archaeology Act, changed the emphasis from

salvage rights to proactive heritage management by distinguishing historic wrecks, those predating 1900, from modern ones. A salvage diver who claimed the Commonwealth, not the State, held the right to legislate over the seabed, soon challenged this act in the High Court of Australia in 1976 and therefore the rights of salvage under the Navigation Act were still valid (Henderson 1997: 44). Although the High Court agreed with the salvor's argument, before its decision was given the Commonwealth was able to enact its own national level legislation, the Historic Shipwreck Act of 1976, which extended the protection of historic wreck sites across the entire Australian coastline.

Of the many individuals who contributed to the establishment of modern maritime archaeology in Australia, Jeremy Green is one of the most influential. A graduate of Oxford University and a researcher who worked with George Bass in the late 1960s, Green became the Western Australian Museum's first Curator of Maritime Archaeology, holding that post for more than 25 years. Graham Connah, founding editor of the *Australian Journal of Historical Archaeology* and one of that country's first pioneers of historical archaeology, praised Green for his contributions. Concerning the field he stated:

> "Whatever their individual limitations, however, the seventeenth- and eighteenth-century wrecks off the Western Australian coast have a unique contribution to make to Australian archaeology; together with later shipwrecks, they provide us with our longest historical archaeological sequence. It is fortunate, indeed, that their investigation has been a model of archaeological endeavor. This work has been organized by the Western Australian Museum, and it has achieved worldwide recognition not only because of its discoveries, but also because of the sophisticated survey, excavation, recording, recovery, conservation and display techniques that have been used. Many people

> have contributed to this work, but it is the name of Jeremy Green which has become particularly associated with it." (Connah 1988: 14)

Compared to the development of the field in the United States and the United Kingdom, maritime archaeology in Australia seems to have enjoyed a much closer relationship with the archaeological mainstream, integrating with professional land archaeologists while at the same time moving far away from the influences of salvage.

As always, the practice of salvage continued to lurk in the background. As the newly born field of modern maritime archaeology grew so did the criticism of the marine salvage industry for its destructive practices. For the first time, professional archaeologists across Europe, America, and Australia started to organize themselves to fight against the practices of the treasure salvor, making the argument that important historical resources were being destroyed in the search for monetary reward. Because the environmental movement was beginning to take off in the late 1960s and 1970s, a small part of the salvage community was concerned that a negative public image could threaten their industry. In an attempt to bolster their deteriorating public image many treasure salvors began to portray their work as archaeological research, claiming they were historically conscious. In 1974 Robert Sténuit salvaged the wreck of the *Slot ter Hooge*, a Dutch East Indiaman lost in 1724 (Sténuit 1975). John Lethbridge, who was under contract with the Dutch East India Company, had previously recovered half of the wreck's reported treasure. Because Sténuit created the illusion that the project was about archaeology, he gained the financial support of the National Geographical Society as well as its broad media audience. In the end, the salvage of the *Slot ter Hooge* resulted in no published report, no map of the wreck site, the sale at auction of the recovered artifacts, and the reaffirmation of the popular myth that treasure salvage was legitimate archaeological research.

But Sténuit's exploitation of a historical wreck site was just the tip of the iceberg compared to the firestorm of controversy that erupted over the salvage of the

Nuestra Senora de Atocha. In 1973 R. Duncan Mathewson III joined Treasure Salvors Inc. in their salvage of the *Atocha.* The company, founded by Mel Fisher who was supervising the project, had discovered the remains of the vice-flagship of a Spanish treasure fleet that was lost in 1622 (Mathewson 1986). At the time, Mathewson became the first archaeologist to work with a commercial salvage operator, sparking a major debate within the archaeological community concerning the issues of professional ethics, who had the right to excavate a shipwreck site, and should archaeologists work with the "enemy" if it meant preserving some information that otherwise would be lost. A more in-depth examination of these issues will be presented in Chapter 5.

1980-1990: THE ANTHROPOLOGICAL DEBATE, HISTORIC PRESERVATION LEGISLATION, AND THE GROWTH OF CULTURAL RESOURCE MANAGEMENT

In the 1980s Keith Muckelroy was hailed as one of the key figures who helped to bring maritime archaeology closer to the mainstream. But at the same time a deep rift was developing within the field, especially in the United States, which pitted the first professional pioneers of modern maritime archaeology against the next generation of maritime archaeologists who were more anthropologically minded. These newcomers viewed the techniques and paradigms of the pioneers as antiquated historical particularism and called for the adoption of the more modern approaches of the "new" archaeology. But again, maritime archaeology was one step behind what was happening in mainstream archaeology. During the 1980s, processual archaeology was becoming passé as a new school of thought, post-processualism, started to take hold and exert its influence on the field.

In 1983 *Shipwreck Anthropology*, edited by Richard Gould of Brown University, was published. It was a compilation of papers that were presented in 1981 at a seminar sponsored by the School of American Research and the U.S. National Park Service. Keith Muckelroy was originally scheduled to attend, but his untimely

death left an opening in the program and George Bass was invited to participate. The inclusion of Bass only helped to highlight the growing division between what had become the old guard of historical particularists, such as Bass, Katsev, Martin, and Green, and the new school of anthropologically minded maritime archaeologists represented by Richard Gould, Patty Jo Watson, Daniel Lenihan, and Larry Murphy. This seminal publication was a real attempt to bring maritime archaeology closer to the mainstream, but in doing so it went so far as to criticize the very individuals who had founded the field in the first place. Given that he was the only historical particularist on the panel, George Bass wrote what is arguably one of his most profound articles on the subject of maritime archaeology, entitled *A Plea For Historical Particularism in Nautical Archaeology* (Bass 1983). Also within this publication is an article by Patty Jo Watson that addresses the issue of theory in the field (Watson 1983). The issues raised in *Shipwreck Anthropology* are discussed in greater detail as part of Chapter 4.

It is also during the 1980s that the implementation of historic preservation legislation for shipwrecks truly became an effective shield against the ravages of the treasure hunter and the practice of cultural resource management was firmly established. Although some laws had already been passed by this time, as previously mentioned, for the most part these were either inadequate or ineffective in protecting underwater archaeological sites. One of the major reasons for the weakness of these laws was their incompatibility with existing salvage legislation, which had been in existence for much longer and was a firmly established component of maritime law. These new laws also had their opponents in the form of the historic shipwreck salvors who viewed historic preservation legislation as a direct attack on their livelihood and on the industry as a whole.

In 1980 the U.S. National Park Service, which is the leading historic preservation agency for the United States, created the Submerged Cultural Resource Unit (SCRU). SCRU was headed by Daniel Lenihan, the former director of the

National Reservoir Inundation Study, and it was charged with managing the underwater cultural resources in 61 areas of the National Park system as well as many additional sites in the U.S. Trust Territories of the Pacific (Lenihan 1997: 408). What is significant about the formation of the SCRU is that in one move a group of anthropologically minded archaeologists became incredibly influential as they were given responsibility for managing and preserving more shipwreck sites than any other single organization in the United States. To help promote its objective of integrating shipwreck archaeology with mainstream anthropological theory the SCRU helped to organize the School of American Research Seminar previously mentioned (Gould 1983; Lenihan 1983, Murphy 1983). Other areas of growth in CRM in the United States occurred along the east coast and in Texas with the work of John Broadwater, Gordon Watts, and J. Barto Arnold III.

The first historic preservation legislation in the United States that directly addressed the issue of shipwrecks was the Abandoned Shipwrecks Act that was passed in 1987 and enacted in 1988 (Aubry 1997: 16). Previous to the passage of this act, many state governments who were concerned with preserving their submerged maritime cultural heritage started to claim title and control over the abandoned shipwrecks that were situated on state submerged lands. This soon brought them into conflict with the Federal Admiralty Court, which traditionally had treated shipwrecks as commodities lost at sea that fell under the laws of marine salvage. The Abandoned Shipwrecks Act tried to solve this problem by removing jurisdiction for such sites from the Admiralty and giving it to the states in which they were located. The only exception involved either U.S. warships or wrecks entitled to the rule of sovereign immunity.

In Britain, the Council for Nautical Archaeology founded the Nautical Archaeology Society (NAS) in 1981, which eventually took over the publication of the *International Journal of Nautical Archaeology* in 1987 (Fenwick 1997: 439). That same year the Council for Nautical Archaeology was integrated into the much larger

Council for British Archaeology. Also during this time an informal group of individuals who were interested in maritime archaeology was formed to help promote the field in Britain. One of its major concerns was the apparent failure of the Protection of Wrecks Act that had been passed in 1973. In 1984 this group met with the Secretary of State who was responsible for implementing the act and voiced their concerns about its failure. This prompted the United Kingdom government in 1985 to invite bids for a contract that would create a unit of diving archaeologists that would help in the implementation of the act.

As stated in the previous section, the first country to enact the first effective legislation concerned with the preservation of historic shipwrecks was Australia. The development of CRM in the United Kingdom took a similar course, although more slowly. The inadequacy of the Merchant Shipping Act to deal with the issue of heritage became obvious in the early 1970s. The vandalism of many historically important wreck sites in the UK, such as the *Association* and the *Amsterdam,* again highlighted the inherent flaw in this system in terms of protecting cultural heritage on the seabed. In 1973, 10 years after the changes in Australia, the Protection of Wrecks Act was passed addressing the issue of preservation. But just as in the case of Australia's Museum Act Amendment Act of 1964, it did not create a management body that would help to implement the preservation legislation. The Protection of Wrecks Act was also much weaker than the Australian Act because it was reactive instead of proactive, affording no protection to historic wreck sites which have not been formally designated.

In the mid 1980s the National Maritime Museum, which would have been in an advantageous position to win the government's contract for maritime archaeology, disbanded its Archaeological Research Center, essentially closing its doors to active underwater research. One of its key members was Martin Dean, who had taken over the position left open by the death of Keith Muckelroy. Dean was a graduate of the University of London's Institute of Archaeology, arriving at a time when Joan du Plat

Taylor was about to retire. Before enrolling at the University of London he had been a professional photographer who had learned how to SCUBA dive and had a strong interest in archaeology. When Taylor heard that one of the Institute's new students was a diver she tracked Martin Dean down and convinced him to set up a diving research group, which he did.

Dean's background in diving seems to have been a major factor in his eventually becoming a maritime archaeologist. He credits Alan Bax with igniting his first interest with the subject when he attended a weekend underwater archaeological training course that Bax was offering at Fort Bovisand in Plymouth during the 1960s. Alan Bax was a former navy diver who fit the familiar profile of antiquarian, adventurer, and diver. In 1965 he was involved with the location of a treasure ship off the Shetland Island and had close ties with Joan du Plat Taylor. The closure of the ARC created an opportunity for the University of St. Andrews, which won the contract with the Department of Transport in 1986, and hired Martin Dean to form the Archaeological Diving Unit (ADU).

Since its inception, the primary duties of the ADU have included on-site evaluation of wrecks proposed for designation; monitoring and assessing the impacts affecting previously designated wreck sites; offering advice and assistance to individuals or groups who hold a license to conduct investigations at a designated wreck site; monitoring these investigations and assessing their value when completed; and lastly, to assist those heritage organizations across the United Kingdom who are responsible for shipwreck archaeology (Oxley 1991:58). More details concerning the work of the ADU are presented in Chapter 4.

Just as the invention of SCUBA in the 1950s and 1960s facilitated the exploration and investigation of shallow shipwrecks (less than 200 feet), the use of remotely operated vehicles (ROVs) during the 1980s facilitated the exploration of wrecks in deep water. The best-known example of the application of this new

technology was the rediscovery of the remains of the *Titanic* in 1985. Its relocation was a joint venture between the Woods Hole Oceanographic Institute in Massachusetts, which was represented by Robert Ballard, and the *Institut Francais de Recherches pour l'Exploitation de la Mar* (IFREMER), represented by Jean-Louis Michel. It is indeed unfortunate that soon after its discovery the salvage of the *Titanic* was begun by IFREMER and Titanic Ventures Inc., a private American company. This was immediately followed by a series of court cases as various parties fought over the salvage rights, an unfortunate situation which continues today.

In conjunction with the development of deep water technology was the creation of a new entity, the commercial archaeologist. The first project to claim the use of ROVs to actually excavate a historic shipwreck in deepwater was conducted by a private company called Seahawk. In the late 1980s Greg Stem, a co-founder of Seahawk, located the remains of what appeared to be an early seventeenth century wooden shipwreck situated in 1,400 feet of water off the Florida Keys in the Dry Tortugas. Raising approximately 8 million dollars in capital, Stem proceeded to plan the excavation of the wreck using ROV technology to photograph, map, excavate, and raise the contents of the wreck. But because Seahawk planned to sell the recovered artifacts, no professional archaeologist would assist.

SUMMARY

An effective method to make sense of the complex history of maritime archaeology underwater is to break it down into a series of distinct developmental phases. These phases represent the rise and fall of predominant trends through time, and not the complete replacement of one activity with another. In fact, these different activities continue to interact and influence each other and most likely will continue to do so. Table 2 presents a list of some of the key milestones that signal the progress of maritime archaeology underwater.

Table 2
Milestones in Maritime Archaeology Underwater

	PHASE I
500 BC	Herodotus mentions divers formally salvaging shipwrecks
100 BC	1) Rhodian Law Developed 2) Cargo from the Madrague de Gien Wreck partially salvaged by divers
100 AD	Roman urinator mentioned by Plinius the Elder
530	Rhodian Law of Jettison included in the *Digest* of Byzantine emperor Justinian I
ca 1000	Buried vessel uncovered in the ruins of Verulamium by Abbot Ealdred of St. Albans
1152	Laws of Oleron enacted by Eleanor of Aquitaine
1190	Black Book of the Admiralty - foundation of modern admiralty law in Britain
	PHASE II
1446	Leon Battista Alberti at Lake Nemi using divers
1529	Vettor Fausto builds quinquareme based on ancient form
1531	First reference to a practical diving bell
1535	Francesco Demarchi revisits Lake Nemi using a primitive diving bell
1680s	Lloyd's of London founded
1687	Sir William Phips recovers 26 tons of ingots from the Spanish treasure ship the *Concepcion*
1720	Captain Jacob Rowe patents diving engine
1823	Invention of the full diving dress - later improved by Augustus Siebe (1840).
1836	John Deane commissions *John Deane's Cabinet of Submarine Recoveries, Relics, and Antiquities*
1854	Merchant Shipping Act passed
1863	Nydam boat excavated in Denmark
1868	French Banker Hippotyte Magen conducts treasure hunt in the Ria de Vigo in
1870	Jules Verne published *Twenty Thousand Leagues Under The Sea*
1880	Gokstad boat excavated in Oslo Fjord
	PHASE III
1900-1901	Antikythera Expedition lead by Greek archaeologist George Byzantinos
1904-1909	Edward H. Thompson explores cenote (natural spring) at Chichen Itza.
1908-1911	Mahdia Expedition - Alfred Merlin/ Guy de Frondeville
1910	Brussels Salvage Convention
1911	Society for Nautical Research publishes first issue of *Mariner's Mirror.*
1917-1924	$5,000,000 in gold bullion salvaged from the *Laurentic*
1922	Salvage of the *Egypt*
1932-1935	Captain L.F. Hagglund - Royal Savage & Philadelphia (salvage with antiquarian interest).
1934	National Maritime Museum in Greenwich is founded
1935-1937	Pere Poidebard's (the French Jesuit) study of harbor works of Tyre - first photographs of an underwater site
1945	Nino Lamboglia hires salvors to recover objects from an amphorae wreck at Albenga - disaster
1946	Cousteau-Gagan aqualung made available to the public - sport diving is invented
1948	1)Fos-sur-Mer by Dr. Rene Beaucaire 2) Mahdia Revisited by Philippe Tailliez, Cousteau, Frederic Dumas
1952	Grand Congloue by Cousteau, Dumas and Fernand Benoit
1955	First International Conference on Underwater Archaeology held in Cannes, France
1956	1) Advernturer/explorer Edwin A. Link at Port Royal 2) rediscovery of the *Vasa* by Anders Franzen
1957	1) Tailliez and the Titan Wreck 2) Five Viking vessels located in Roskilde Fjord
1958	Second International Conference on Underwater Archaeology held in Albenga, Italy

Table 2
Milestones in Maritime Archaeology Underwater

PHASE III (continued)

1958-1959	Spargi - Professor Nino Lamboglia and Dr. Gianni Roghi - attempt at detailed recordation of amphora wreck.
1959	John Huston founds the Council of Underwater Archaeology

PHASE IV

1960	1) George Bass & Peter Throckmorton excavates Bronze Age wreck site at Cape Gelidonya. 2) John Goggin publishes "Underwater Archaeology: Its Nature and Limitations" in *American Antiquity*
1961	1) Third International Conference on Underwater Archaeology in Barcelona, Spain 2) Vasa raised from the sea floor
1963	Conference on Underwater Archaeology sponsored by the Minnesota Historical Society.
1964	1) The Museum Act Amendment Act (first historic shipwrecks protection act in Western Australia) 2) Danish National Museum forms the Institute of Maritime Archaeology 3) Council for Nautical Archaeology (CNA) founded by Peter Marsden & Joan du Plat Taylor
1965	Salvage of the *Cairo* by W. J. Bisso - archaeological disaster
1966	Bass published *Archaeology Under Water*
1967	*Mary Rose* located by Alexander Mckee
1968	1) Kyrenia wreck excavated off Cyprus by Michael Katzev, later reconstructed by Richard Steffy 2) Colin Martin and Sydney Wignall search for and finds the Spanish Armada wreck *Santa Maria de La Rosa*
1970	Conference on Underwater Archaeology jointly held with the Society for Historical Archaeology
1971	National Maritime Museum (UK) creates its Archaeological Research Center (ARC)
1972	First issue of the International Journal of Nautical Archaeology published by the Council for Nautical Archaeology
1973	1) Protection of Wrecks Act (U.K.) 2) Institute of Maritime Archaeology started at the University of St. Andrews
1974	Salvage of the *Slot ter Hooge* by Robert Stenuit
1976	1) Bass moves the Institute of Nautical Archaeology (INA) to Texas A&M University 2) Historic Shipwrecks Act (Federal Government Legislation for Australia)
1978	Keith Muckelroy publishes *Maritime Archaeology*
1980	US Park Service creates the Submerged Cultural Resource Unit (SCRU)
1981	Council for Nautical Archaoelogy founds the Nautical Archaeology Society (NAS)
1982	U.N. Law of the Sea Convention/ Raising of the *Mary Rose*
1983	*Shipwreck Anthropology* edited by Richard Gould
1985	1) Remains of the *Titanic* rediscovered 2) National Maritime Museum closes its ARC
1986	Formation of the Archaeological Diving Unit at the University of St. Andrews.
1987	Abandoned Shipwreck Act (U.S.)

During Phase I (500 B.C.-1200 A.D.), man's exploration of the maritime world consisted mostly of unassisted free diving and the salvaging of goods from wrecked ships. Over several hundred years the profitable practice of marine salvage eventually developed into a modest trade, even becoming organized into guilds by Roman times. The enactment of laws governing this pursuit, and outlining the rewards to be paid to salvors, helped to legitimize and industrialize the practice still further. The earliest precedents of salvage codes, embodied in the Rhodian Law, are still applied today. There is little evidence for antiquarian interest in submerged maritime remains during this period.

Phase II (1200-1900) saw the rise of maritime antiquarianism, the continued growth of marine salvage into a robust industry, and the first systematic excavation of ships buried on land. The development of diving technology grew from diving bells, diving barrels, semi-atmospheric diving dress, and ended with the invention of the full diving dress. These devices facilitated greater access to the underwater world and allowed salvors to become far more effective in recovering lost cargoes and armaments. Some of these marine salvors, like John Deane, developed a humanistic interest in historic wrecks, but the most common image of shipwrecks, as mere repositories of treasure, still predominated. The rise of marine insurance was also an added force to the growth of marine salvage.

As diving technology became more sophisticated and the dangers of diving to deeper depths increased, the profession of working underwater gained a widespread reputation for being highly specialized and extremely hazardous. This appears to have created a barrier for those who were interested in studying submerged maritime remains but lack diving experience. During the nineteenth century the excavation of buried ships on land proved that hull remains could provide a wealth of information concerning the past, but these insights did not crossover to maritime archaeology underwater, and the treatment of terrestrial maritime sites followed a path of archaeology while submerged sites were treated as salvage.

Phase III (1900-1960) witnessed maritime antiquarianism develop into pre-modern maritime archaeology underwater, the continued growth of the salvage industry, and the creation of sport diving with the invention of SCUBA. Maritime history also advanced as an academic field of study. But pre-modern maritime archaeology underwater employed to a great extent the techniques of salvage instead of those of traditional archaeology. Because diving was commonly perceived to be a specialized and highly risky profession, academic archaeologists tended not to dive, leaving the responsibility of on-site excavation entirely up to those with no archaeological background at all. The usual objective of these undertakings was the harvesting of well-preserved antiquities, and not the systematic investigation of a past culture. The reputation of maritime research suffered as a result, and the image of the underwater treasure wreck persisted.

Because underwater maritime research failed to overcome these problems the mainstream archaeological community held the study of shipwrecks in low regard. Without a sustaining network of peer review and academic publication, untrained and unprofessional individuals labeled themselves as archaeologists when, in fact, they tended to be more like adventurous explorers searching for treasure. This only further undermined the professional credibility of the field. The general public's perception of what was archaeology and what was salvage became tainted and confused as charismatic treasure hunters gained the high ground in the popular media. Sport divers and amateur archaeologists also played a major role in the development of maritime archaeology underwater.

Phase IV (1960-present) marks the beginning of modern maritime archaeology underwater with the Cape Gelidonya excavation by George Bass and Peter Throckmorton. This period has seen the most dramatic change. Professional journals, academic programs, annual conferences, protective legislation, professional accreditation, and the rise of cultural resource management are developments that have

contributed to the establishment of maritime archaeology underwater as an accepted sub-discipline of archaeological research. It was during this period that archaeologists started to regain the professional credibility of the field and educated the public concerning the differences between treasure hunting and the true archaeological investigation of a shipwreck.

Within this phase there are two generations of professionals. The first includes those who helped to create maritime archaeology in its modern form. One interesting characteristic shared by many of the founding fathers of modern maritime archaeology is that a significant proportion did not come from academic backgrounds, or professional archaeological backgrounds, but instead came from outside the field or from its fringes. Peter Throckmorton, Richard Steffy, Ole Crumlin-Pedersen, and Colin Martin all began their involvement in maritime archaeology as non-archaeologists, but all have ended up making a name for themselves as the pioneers of a new sub-discipline of archaeological research.

The second generation represents those professional maritime archaeologists who are working to bring the field closer to the center of mainstream archaeological practice. Keith Muckelroy was probably the first of this movement, but others such as Jan Bill, Toni Carrell, James Delgado, Richard Gould, Daniel Lenihan, and ChristerWesterdahl followed. The beginning of modern maritime archaeology underwater may have gotten off to a slow start, but by the 1990s it was catching up and re-integrating with the mainstream.

The historic overview presented here identifies several distinct activities and fields, some of which can be traced back to ancient times, that have influenced the development of maritime archaeology underwater. These influences include marine salvage, maritime history, classical/historical archaeology, cultural resource management, museums and their collecting practices, and sport diving (Figure 1).

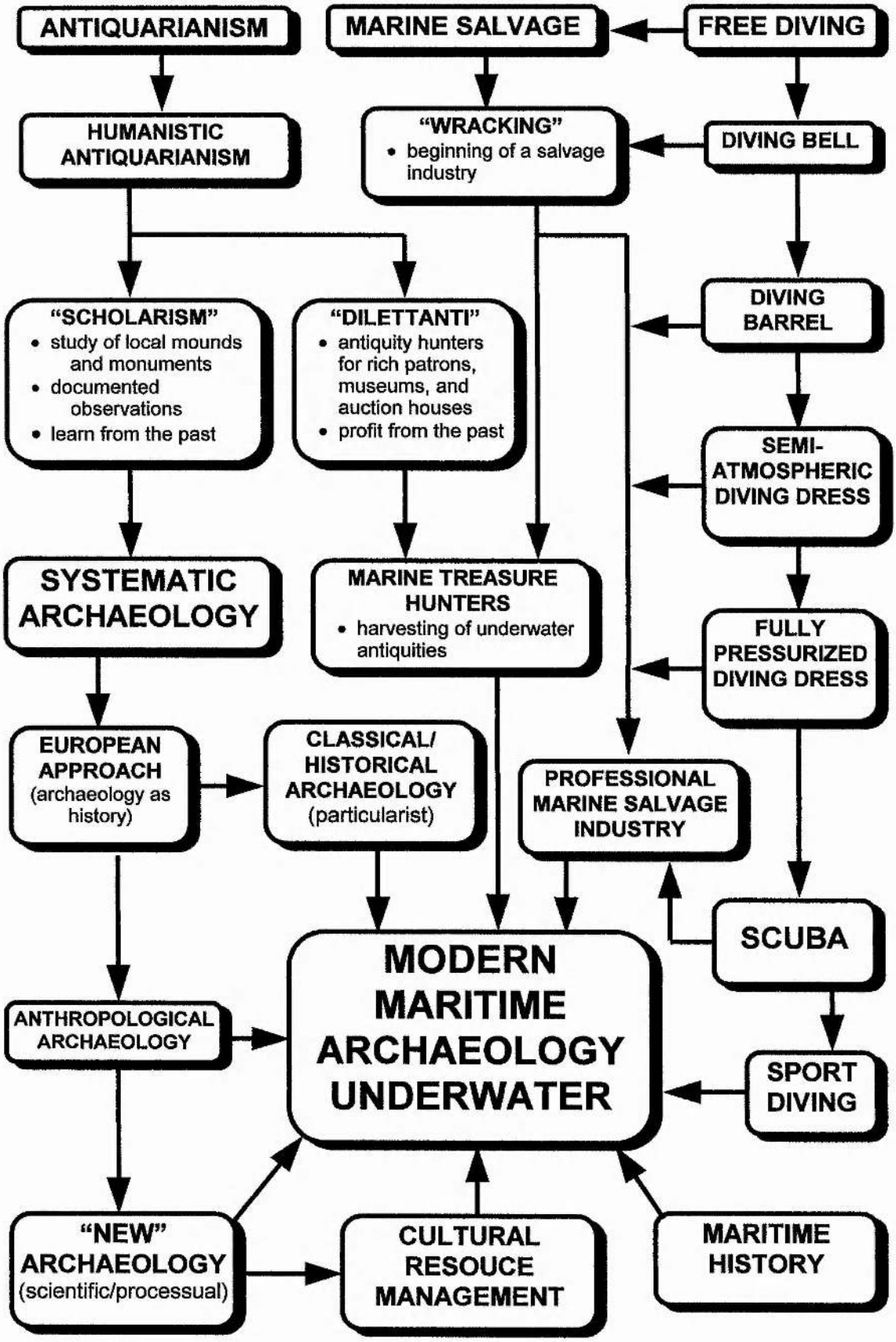

FIGURE 1 Developmental Influences of Maritime Archaeology

It is too soon to truly appreciate the recent developments of maritime archaeology underwater during the last decade and if they will have any long-term significance. Only time will tell. But the historic context presented here has set the stage for a discussion of some of the issues that are currently facing the future development of the field, including 1) the application of theory in maritime archaeology underwater; 2) the role of amateur archaeology and sport divers; 3) archaeology versus salvage; and 4) professionalism, ethics, and the teaching of maritime archaeology.

CHAPTER 3: THE APPLICATION OF THEORY IN MARITIME ARCHAEOLOGY

"Maritime archaeology since Muckelroy (1978) has suffered from a lack of concerted strategy and methodology, which has served to distance the pursuit from the mainstream." (Gibbins 1990: 376).

Every type of archaeological investigation depends, either directly or indirectly, upon some form of theory that guides the study of cultural remains. Without some kind of theoretical foundation archaeological research can become unfocused, unproductive, and amateurish. What is surprising is that given the importance of theory to the profession, it is a topic seldom discussed or explored by many archaeologists, particularly by those who practice maritime archaeology underwater. Before examining the application of archaeological theory in maritime archaeology, its evolution and role in mainstream archaeology must be briefly outlined to provide the prerequisite context.

THEORY IN MAINSTREAM AND HISTORICAL ARCHAEOLOGY

What is meant by the term "theory"? Broadly defined, theory is "a systematically organized body of knowledge used in a field to predict, analyze, explain, and then guide interpretations" (Babits and Tilburg 1998: 1). Theories, therefore, are those speculations and assumptions that help to guide research through its various stages. In archaeology, theory is applied at four different stages of investigation: data collection, data analysis, experimentation, and data interpretation. At each of these stages different levels of theory are utilized, either as theoretical constructs, middle-range theory, or general theory (Figure 2). But the overall aim is still to improve the quality and validity of the work that is conducted. Theory is a vital component and no archaeological study can be better than the ideological assumptions that underlie the development of its conclusions (Clark 1978: xviii). This applies to all levels of research, for without theory, results become suspect, comparisons become problematic, and repeatability becomes impossible.

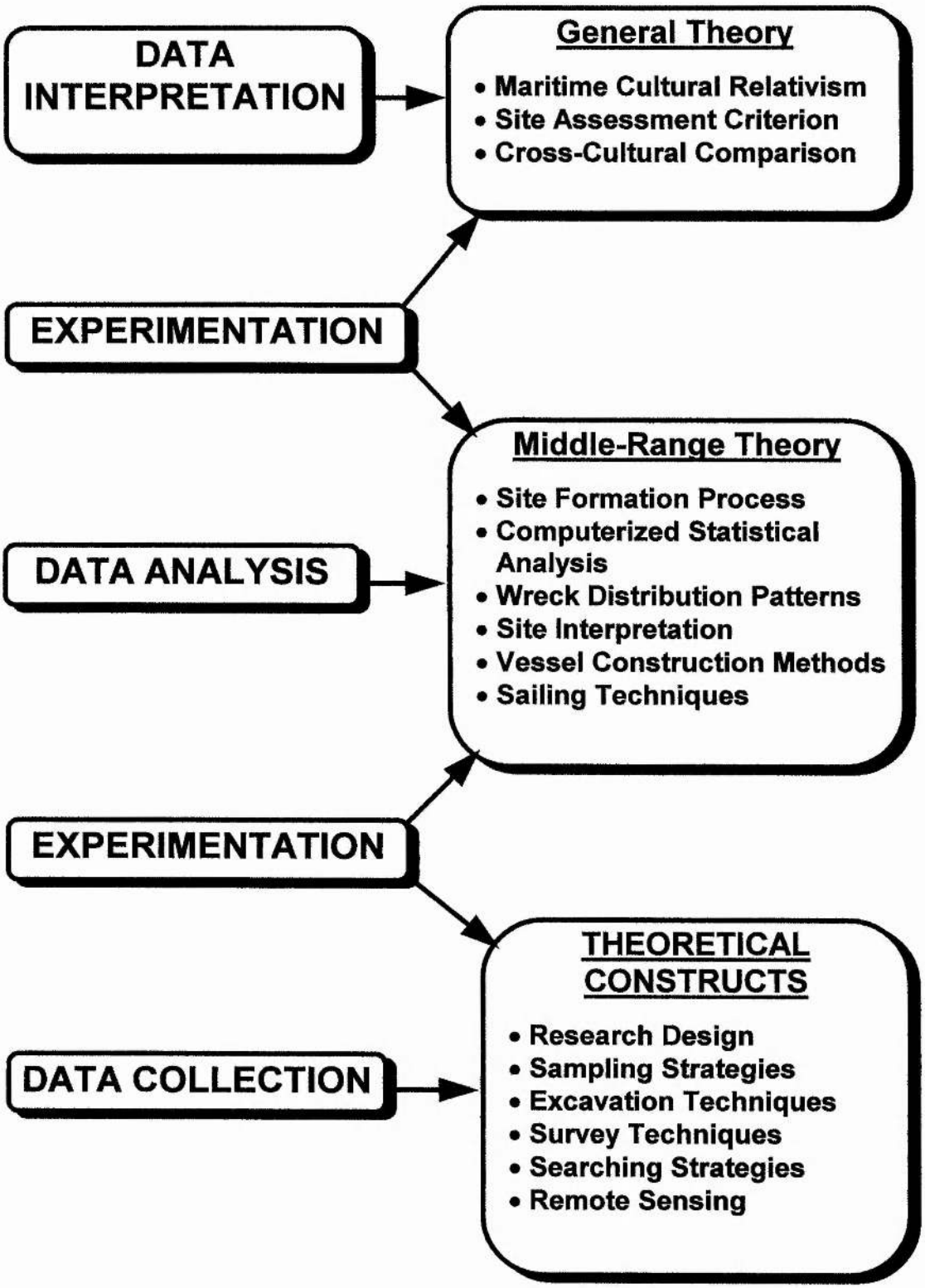

Figure 2 Application of Theory to the Four Stages of Maritime Archaeological Research

One of the reasons why theory seems to be misunderstood by so many archaeologists is that there are as many approaches to archaeological research as there are archaeologists. If you asked three archaeologists to investigate the same archaeological site you are likely to get three different sets of conclusions. This again underscores the importance of theory because it creates the common measure that allows the validity of variant conclusions to be compared. Only by explicitly stating what assumptions were made during the different stages of data collection, analysis, interpretation, and possibly experimentation, can researchers argue the correctness of their results.

Another reason for the confusion surrounding this subject is that there exists a continuum among archaeologists, with academic theoreticians at one-end and field archaeologists at the other (Hodder 1992). Theory can often be a very "dry" subject and given a choice between a class on theory and one on the Pictish symbol stones of Scotland, students are more likely to choose the latter. The fact that *doing* archaeology is inherently more fun and interesting than *thinking* about archaeology is one of the reasons why this continuum exists. Until the teaching of theory becomes a more integral component of the archaeological curriculum, the divide between field archaeologists and theoreticians will continue to widen.

The evolution of theory in archaeology is a complex story. The following discussion presents a brief history of archaeology's theoretical progress, one that provides the necessary context for understanding the role theory has played in the expansion of maritime archaeology underwater (Clarke 1978; Willey and Sabloff 1980; Gibbon 1984; Sharer and Ashmore 1987; Renfrew 1991; and Hodder 1992).

Archaeological theory started with a basic desire to understand the function and origin of an artifact. This is one of archaeology's oldest and most basic motivations that has long stirred the interest of antiquarians. This motivation became more sophisticated with the development of humanistic antiquarianism during the

Renaissance, but the primary focus remained the artifact. Only when archaeology became a scholarly pursuit did researchers start to look beyond the individual relic and examine its context. It was during the latter half of the nineteenth century that archaeologists began to classify, organize, and systematically analyze artifacts as assemblages to help reconstruct the past. The next step involved the development of histories and chronologies, a trend that came to dominate the study of archaeology during the first half of the twentieth century.

As stated in the previous chapter, a minority of archaeologists felt that the boundaries of archaeology could and should be extended much further into the realm of speculation. Taylor's critique of archaeology in 1948 is one example. The bold move into speculation demanded a much more rigorous application of theory than ever before. No longer were theories needed to address the fundamental needs of data collection and analysis. Now they were needed for interpretation, because only via theory could one move beyond the hard facts of archaeological data and delve into what that data actually meant in terms of culture and cultural change. Unfortunately the field was not sophisticated enough to achieve this objective and Taylor's call for a conjunctive approach was largely ignored.

Because of archaeology's strong association with history and the study of classical civilizations, its primary emphasis has for the most part been the reconstruction of isolated historical events. This school of thought has been termed historical particularist. But growing dissatisfaction with the historical particularist approach, combined with the increasing influence of anthropology in American archaeology, led to the development of a "new" archaeology in the 1960s and 1970s. This new archaeology tended to scorn historical approaches and instead emphasized cultural process and those elements that influenced it. The new archaeology fully embraced the idea of archaeology as science and encouraged both inductive and deductive reasoning (Figure 3).

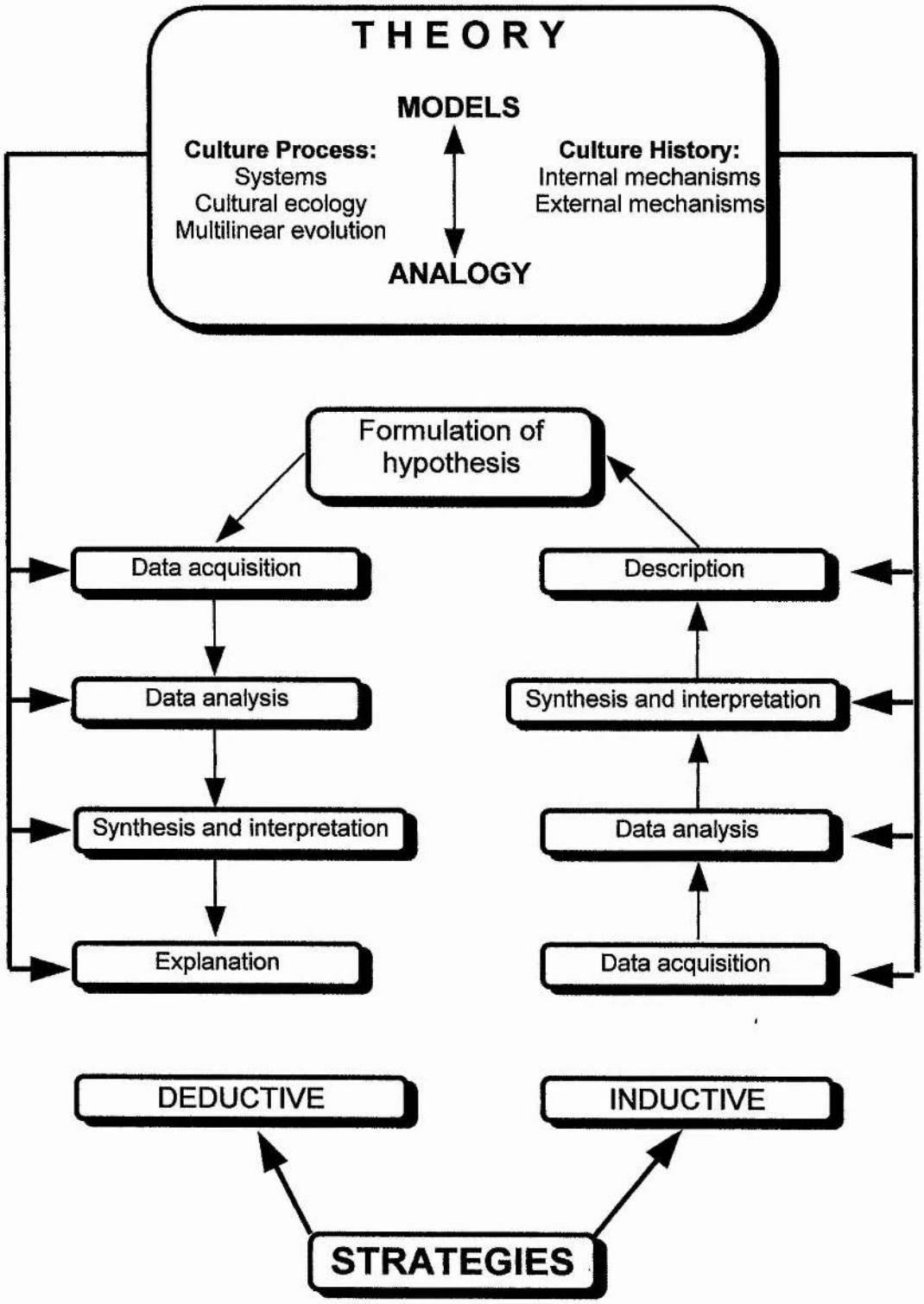

Figure 3 Model of Archaeology as Science
(after Sharer and Ashmore, 1987: 542)

The first to articulate these ideas explicitly was Binford (1968). He and like-minded colleagues helped to introduce concepts of hypothesis building, middle-range theory, and general theory. During this time the advancement of computer technology also helped to revolutionize the analysis of archaeological data, allowing massive data sets from entire regions to be compared in ways that were impossible before. Although the processual school of archaeology was successful at improving the field during the 1960s and 1970s, its dependence on positivism did cause some widespread dissatisfaction. Many believed that it was a mistake to assume that truly deterministic links existed between the material (archaeological data) and the non-material (behavior, economy, society). These critiques of processual archaeology, which started to take shape during the 1980s and 1990s, came to be termed post-processual archaeology (Hodder 1985). The most beneficial aspect of the post-processual approach was that it went back to the ideas of Taylor 40 years earlier, which supported the integration of history, archaeology, and ethnology. It is too soon to determine what the next substantive development in theory might be.

Historical Archaeology

Because the study of maritime archaeology has become so intertwined with the field of historical archaeology, it seems appropriate to explore its theoretical foundations in more detail. One of the most influential studies of the subject was published in 1977 by Stanley South of the University of South Carolina entitled *Method and Theory in Historical Archaeology*. South identifies three major schools of thought: humanistic archaeology; particularistic archaeology; and scientific archaeology, referring to all three as the "polearm of archaeology" which is used to "face the charge of archaeology as antiquarianism" (South 1977: 5-7). He supported the view that archaeology was science, but he presented the other two schools as contributing segments.

Humanistic archaeology is best represented by the work of Iain Walker and Ivor Noel Hume. In 1967 Walker published an article in *Historic Archaeology* dealing with the principles of historic archaeology. In it he states, "Far from being a science [archaeology] is one of the most subjective studies in the field of intellectual research" (Walker 1967: 24). Noel Hume, one of the founding fathers of historical archaeology in the United States, published several key works including *Historical Archaeology* (1969) and *A Guide to Artifacts of Colonial America* (1970). The goals of humanistic research are as admirable as those of any school, but its methodology tends to be too subjective in nature. Instead of being quantifiable and measurable, observations tend to be of a more "touchy, feely" nature, being heavily influenced by the observer. Hume felt strongly that although archaeologists could make use of science, they were not in fact, scientists.

Particularists adopt a middle-of-the-road approach. Although they are implicitly scientific, particularist archaeologists also believe that they are studying individual people or small groups who are unique, therefore inductive reasoning is of little use and not readily applicable. By adopting such a position they exclude one half of the entire scientific process. This attitude is well illustrated by Clyde Dollar (1968: 11), who stated:

> "The Anthropologist deals with "people" and the historical archaeologist deals with a person or persons. "People" have cultural expressions on a cultural center and peripheral area level; a "person" is basically a cultural variant, and must therefore be dealt with historically and deductively."

The fully scientific approach to historical archaeology developed hand-in-hand with the new archaeology of the 1960s. Binford had a significant influence on the development of historical archaeology in the 1970s when he wrote, "Historic sites archaeologists should actively engage in nomothetic studies aimed at the specification

of general propositions amenable to testing." (Binford 1972: 123). Where the humanists and particularists wanted to divorce or segregate historical archaeology from the rest of field, scientific archaeologists wished to forge a closer relationship with anthropology by adopting the same theoretical framework.

Currently it is unclear what influence the post-processual paradigm has had on historical archaeology. Because there seems to have been a substantial number of historical particularists who did not adopt the nomothetic paradigm of archaeology as scientific to begin with, there seems to be little need for an anti-processual movement within the field.

EARLY MARITIME ARCHAEOLOGICAL THEORY: HISTORICAL PARTICULARISM BY DEFAULT

When the sub-discipline of modern maritime archaeology was first established by Bass and Throckmorton in 1960 it was considered by many to be outside the professional mainstream (Bass 1966, 1975; Goggin 1960). Although this situation has improved greatly over the last 40 years, there is still the perception that diving archaeologists are unconventional and in some case highly unprofessional (Bass 1998: 50; Gould 1983). As the quote from David Gibbins at the introduction of this chapter suggests, one of the reasons for this perception has been the widespread neglect of theoretical application by maritime archaeologists compared to their terrestrial counterparts. It is therefore important to understand the theoretical development of maritime archaeology if one is to appreciate its current status as a whole.

As George Bass began to lead the field of modern maritime archaeology, his own historical particularist approach became the predominant theoretical paradigm by default. The emphasis was studying the evolution of ship design, ship construction, artifact typologies, and historical chronologies. The literature of the time was predominantly concerned with descriptive reports of finds, field methodology, and

improving the techniques of artifact conservation. Although there have been efforts to try and expand the theoretical landscape of maritime archaeology underwater by such researchers as Richard Gould, David Gibbins, and Christer Westerdahl, historical particularism remains the dominant paradigm which guides research today.

KEITH MUCKELROY AND *MARITIME ARCHAEOLOGY*

One of the earliest works to address the issue of theory in maritime archaeology underwater was an unpublished but apparently well-circulated master's thesis written in 1967 by one of John Goggin's students at the University of Florida, Stephen Gluckman (Gluckman 1967; Lenihan 1983). But because it was never formally published its overall influence has not been very significant. It was only with the publication of *Maritime Archaeology* (Muckelroy 1978) that the field started to address this issue substantially, offering an alternative to the well-established traditions of historical particularism.

Muckelroy is considered to be the second most influential person in the development of maritime archaeology underwater and is one of the field's first true pioneers in formulating a theoretical infra-structure specifically geared for the investigation of maritime culture. His book (1978) is widely hailed as a groundbreaking attempt to systematize the investigation of wreck sites and analytically manipulate archaeological data to more readily identify artifact distribution patterns (Gibbins 1990: 376). His studies at Cambridge under David Clarke obviously influenced him a great deal. Clarke's own analytical bent encouraged Muckelroy to apply similar techniques to unravel the complex processes of site formation that are specific to submerged shipwreck sites. Although there had been previous attempts at addressing this issue of wreck formation in a general way (Dumas 1962, 1972; Nesteroff 1972), his was one of the first to apply scientific methodology. Over the last few years the subject of wreck formation processes has become the focus of several research projects (Garrison 1989; Murphy 1990; Ferrari 1994; Oxley 1992 and 1999).

Muckelroy was also a visionary in terms of recognizing the potential of maritime archaeological remains to address the bigger questions of maritime culture. In Chapter 7 of his book he clearly allies himself with the school of "new" archaeologists by stating:

> "Archaeology as a scientific discipline is not just the systematic study of a series of interesting past events in isolation, but must also involve an attempt to understand the development of affairs over periods of time and across regions and continents, as evidenced by those events." (Muckelroy 1978: 226)

He acknowledged that at the time the number of systematically investigated sites was still very limited and this severely hindered any attempt to conduct a synthetic analysis of maritime components. Muckelroy pointed out that although *A History of Seafaring Based on Underwater Archaeology* (Bass 1972) was an ambitious bid to synthesize current data, many of its contributions were little more than descriptive discussions of specific sites (Muckelroy 1978: 227). The size of the maritime archaeological database and the number of systematically investigated shipwrecks is still cited as one of the factors limiting the development of theory in maritime archaeology (Fred Hocker, personal communication, 2000). For a field that is 40 years old and has grown substantially during that time, this is quite a surprising statement and one that seems almost unbelievable. If true, then little has been achieved since Cape Gelidonya. But looking at a few recent publications suggests that the current database of maritime sites is, in fact, quite large. Research concerning medieval seafaring in northern Europe is extensive (Fenwick 1978; Friel 1989, 1995; Goodburn 1986; Greenhill 1976; Hutchinson 1994; McGrail 1981), and seems to disprove the notion of an inadequate database for addressing issues of maritime cultures.

Unfortunately, Muckelroy's attempt to bring maritime archaeology closer to the mainstream did not succeed, due to his untimely death. Most of the major underwater excavation projects conducted during the 1980s and 1990s by Bass, Martin, Katsev, and others followed the same inductive line of reasoning where opportunity was the predominant factor in determining whether or not a wreck was excavated, instead of selectively investigating a wreck as part of a process to prove or disprove a hypothesis. It should be stressed that these projects were by no means flawed or unprofessionally conducted. They represented a very high standard of multidisciplinary research. But particularism still ruled the day and it would take at least another few years before a more generalized approach was called for, a movement that would end up splitting the maritime archaeological community.

SHIPWRECK ANTHROPOLOGY AND THE "GREAT DIVIDE"

Maritime archaeological research has typically neglected the deductive half of scientific investigation and this has resulted in a failure to unlock the full potential of what the discipline has to offer. During the early 1980s in the United States, however, a small but vocal group of maritime researchers started to call for a more anthropological approach to the study of shipwrecks. Given the developmental trends of mainstream archaeology, this shift seemed inevitable. At the time it was recognized that maritime archaeology was seriously lagging behind the rest of archaeology by more than 20 years, placing it firmly within the "classificatory-historical period" (Lenihan 1983: 63). One of the driving forces behind this movement was the National Park Service and its newly created team of diving archaeologists, the Submerged Cultural Resources Unit (SCRU). Led by Daniel Lenihan and Larry Murphy, the SCRU helped to organize a seminar in 1981 at the School of American Research in Santa Fe, New Mexico. Being trained under the American system of archaeology as part of anthropology and not history, these cultural resource managers started to push the field in a new direction that was more scientific and more concerned with broader issues of culture. In 1983 the papers presented at this seminar were published in a

volume entitled *Shipwreck Anthropology* (Gould 1983a). As the name suggests, the primary thrust of almost all of the papers was how maritime archaeology should adopt a more anthropological approach. What is significant about this landmark publication is that it brought to light a rift that was growing between the first generation of maritime archaeologists, represented by Bass and Martin, and the next generation represented by Gould, Lenihan, and Muckelroy. This rift reflected the "Great Divide" (Gibbins 1990: 383) that had been developing in mainstream American archaeology for several years and was just now starting to affect the field of maritime archaeology as the next generation openly criticized the research methods of the old guard.

As one of the participants of the seminar, George Bass became a focal point for criticism launched by Gould and others who claimed that the unscientific methods of particularism were not explicit enough which made subsequent research that much more difficult (Gould 1983b:13-18). In defense of historical particularism, Bass pointed out the many significant contributions of classical archaeologists over the years and posed the important question:

> "If a classical archaeologist excavates and publishes with care an ancient theater simply for a better understanding of Greek architecture and drama, is he not still an archaeologist?" (Bass, 1983: 95)

Of course the answer to such a question is a resounding "yes." Bass is correct when he stated that a historical particularist is as much an archaeologist as an anthropologist, and historiography still had much to contribute to the study of the past, a point made by Walter Taylor in the late 1940s (see Chapter 2). But the point that the rest of the panel was trying to make, a point Bass seems to have missed or possibly ignored, was that historical particularism by *itself* was failing to realize the full potential of the archaeological record by its limited approach. Bass really wasn't doing anything wrong, but there were ways he and others could do it better. This is a subtle distinction, one that commonly gets lost when one group starts to criticize another. To

turn Bass' previously cited question around, could the excavation of an ancient theater actually tell you *more* about Greek culture than just about architecture and drama? And the answer to this question is also a resounding "yes."

The School of American Research Seminar resulted in the identification of five areas that needed to be improved if the field of maritime archaeology was to move forward. These included:

1. An expansion of the research domain of shipwrecks to include non-European types as well as those from modern times
2. Greater explicitness in the planning and execution of research through the increased use of research designs
3. Systematic sampling and survey (searching) methods, selective partial excavation, and experimental and ethnoarchaeological approaches
4. More selective study of shipwreck remains aimed at conserving the maritime database while at the same time providing information and ideas about human behavior
5. More generalization concerning past and present human behavior based on data recovered from shipwreck sites (Gould 1983b:21-22).

Not all of these ideas were new, especially the use of ethnography (McGrail 1984a), but by identifying these five areas Gould was acknowledging that there was a significant degree of underdevelopment in the field of maritime archaeology and that it needed to catch up with the developments in mainstream archaeology on land.

CURRENT THEORY

So where does maritime archaeology currently fit into the larger theoretical envelope of mainstream archaeology? Although there have been a few recent attempts to resurrect the issue of theory in maritime archaeology by Gibbins (1990), Spencer-

Wood (1990), Anuskiewicz (1992), and Westerdahl (1994), these indicate it is still a widely neglected subject (Babits and Tilburg 1998). A survey of 970 research articles published in both the *IJNA* and conference proceedings from 1963 to 1999 found less than 3% (28) dealt with theoretical issues. This is in sharp contrast to the 35% (347) of articles that consisted of predominantly descriptive reports concerning either excavation or survey projects.

When asked to comment on the current role of theory in maritime archaeology, 43% of respondents indicated that it was an area widely underdeveloped and under-used, 16% clearly did not have a firm understanding of the term as it applied to archaeology, and 6% felt it had little practical application (see Appendix D, QD1).

As previously stated, historical particularism has been the predominant paradigm of modern maritime archaeology since it began with George Bass and Peter Throckmorton in the early 1960s. On those rare occasions when theoretical issues are addressed they tend to focus either on data collection or middle-range issues and do not venture into the higher realms of general theory as Keith Muckelroy had hoped. The publication of research designs, which represent the practical application of theoretical issues, was identified as a rarity in the early 1980s (Lenihan and Murphy 1981), a trend that seems to have improved only slightly over the last 20 years.

Since 1990 there have been a few significant works dealing with issues of theory, maritime culture, and the synthesis of current data. In 1990 Gibbins published an article in *Antiquity* that followed closely in the footsteps of Keith Muckelroy by discussing analytical approaches and a broadening of research horizons. In his article he identifies four areas of future concern (contextual attribution, assemblage characterization, site formation analysis, and site occurrence patterns), discusses the problems of terminology, and encourages the further development of maritime research in six areas which he defines as environmental, experimental, locational, historical, anthropological, and ethnographic (Gibbins 1990: 385-388).

At the 1990 Conference on Underwater Archaeology held in Tucson, Arizona, there was a symposium dedicated specifically to issues of method and theory (Spencer-Wood 1990). A total of seven articles were eventually published, marking a high-point in the attention this topic was given at a professional conference. In 1994 Christer Westerdahl published an article in *IJNA* in which he identified 10 maritime cultural traits that could be applied to most, if not all, archaeological investigations. These include:

1. nautical similes and metaphors
2. boat symbols
3. the maritime cultural landscape (regional environment)
4. maritime culture centers or nodes
5. ship type as it relates to culture
6. boat building and ethnicity
7. transport zones
8. transition points (where inland waterways meet open water)
9. seasonal variation in traffic
10. pivotal points within transport zones (Westerdahl, 1994).

But these, and the few additional published works like them, are the exception and not the rule.

The "Great Divide" still exists within the maritime archaeological community, but its atmosphere seems to be more constructive and more polite. A recent article published in the *IJNA* entitled, "Experimental Boat and Ship Archaeology: Principles and Methods" states that experiments need to follow established principles of scientific inquiry (Coats and others 1995). But in the same issue an article entitled "Experimental Archaeology and Ships: Bridging the arts and the sciences" disagrees, saying there are some cases where scientific inquiry does not apply (Crumlin-Pedersen

1995). The debate about whether archaeology belongs in the arts or the sciences seems to be far from resolved, but it has progressed and a substantial middle-ground movement seems to be developing among professionals and students. What is important is that both scientific and humanistic paradigms have something to offer and it would be damaging to the field as a whole if either was excluded from archaeological research.

So has any progress been made? Although articles dealing strictly with theoretical issues have been few and far between, the rest of the published record does reflect some substantial progress in the areas of cultural resource management, synthetic review, regional analysis, multidisciplinary research, and discussion of maritime culture. Most of what is published today still follows the predominant trend of particularistic and descriptive report publication, but as the maritime database has grown, so has the trend to synthesize, integrate, and speculate.

What is definitely needed is less of an emphasis on individual shipwreck sites and their particulars. Instead, more research needs to be directed at larger issues concerning the pattern, role, function, and influence of maritime structures (ships, harbors, crew, and all they contained) on the societies that produced them and the societies they interacted with. Little has been said about what the maritime archaeological record represents in terms of maritime culture. "Big Picture" questions, those typically associated with upper level theory, still seem to be ignored by the field. This is not to say these types of questions have not been looked at, but the general trend seems to indicate a reluctance to address them.

One model of how maritime archaeological data can and should be used to address wider cultural issues is the research of Colin Martin and Geoffrey Parker into the Spanish Armada of 1588 (Martin and Parker 1999). This multidisciplinary research, incorporating the underwater investigation of Spanish shipwrecks with a detailed examination of Spanish historical documents, not only describes the details of

one specific historical event, but delves into much broader issues, such as the evolution of European weapons technology, the logistics and communication systems of Late-Medieval and Early Modern warfare, and the different effects sixteenth century industrialization had on two European maritime cultures. Martin and Parker's work could also be incorporated into other technical, social, and economic studies that look at English and Spanish culture as a whole, not just their maritime aspect. This more holistic approach yields a much greater return in terms of what is learned and the usefulness of maritime data to other fields of research.

Another example of moving beyond the ship and looking at an issue of maritime culture is a short paper presented by Lawrence E. Babits at the 1998 Conference on Underwater Archaeology, in which he discusses the imagery, details, and fact of what constitutes a pirate in the archaeological record (Babits 1998). Sparked by the discovery of a wreck in North Carolina suspected to be Blackbeard's *Queen Anne's Revenge*, he asked the questions "So how does one tell a pirate from a sailor?" and "How does one tell if a wreck is a former pirate ship?" (Babits 1998: 62). These types of questions concerning the patterning of maritime material culture are important because as Lewis Binford stated:

> "In the absence of demonstrated patterning- spatial, structural, or temporal- there is in fact nothing to which the investigator may direct a *WHY* question, for as long as there are only particular facts there are only particular questions. Once there are demonstrated general facts, then one may ask general questions. Only with the latter is scientific progress possible." (South 1977; xi).

Other research projects, like le Bon's (1997) study of maritime graffiti, are demonstrating the potential of maritime data to shed a wider light on more than just nautical technology and the use of ships, exploring other aspects of maritime culture in the past. There are several other "Big Picture" studies of this sort, but the proportion

remains low compared to the number of descriptive reports that focus on particular issues. Shipwrecks and other maritime artifacts must be related back to their parent culture systems if the study of their remains is to realize its full value.

When remains from the recent past are investigated, particularly those of the twentieth century, the research questions justifying their study become more difficult. What new information can be learned through the excavation of a 50-year-old World War II warship that cannot be gained by an examination of existing documentation, especially in those cases where it is quite extensive? This is a question archaeologists need to answer if they are to justify the expense and effort of disturbing such sites. Trying to solve the "mystery" of a particular ship's sinking seems a poor reason to spend considerable financial resources when the end contribution to the study of culture and history is so limited. But there is something to be learned through the archaeological study of the recent past, there just needs to be more thought placed into the reasons why. There have been instances when archaeological research has improved our understanding of historical events (Martin and Parker 1999), but this generally occurs only after a site or series of sites have been thoroughly studied, and it is rarely an objective stated at the beginning of an excavation. The key to addressing this issue is having a mixture of good research questions at the start of a research project and the flexibility and awareness to identify new questions as they occur during the research process. The value of a research question should be judged on the basis of how it was formed and its potential to contribute to the overall study of the past, not just one narrow aspect of it.

SUMMARY

So what are the ramifications of the theoretical underdevelopment of maritime archaeology underwater? Theoretical underdevelopment is one of the reasons why the field has, until quite recently, remained outside of the archaeological mainstream and it will unfortunately tend to remain there until more maritime archaeologists start to

discuss, integrate, and include theory as part of their research. Without a theoretical basis, there is little to distinguish between a professional archaeological investigation and an amateur attempt at exploration and recovery. It has been stated that archaeology is a science examining data from the past to test hypotheses about past cultural processes, whereas antiquarianism merely collects data and attempts to do something with it (Plog, 1974: 4). Whether or not maritime archaeology underwater achieves this is unclear, but what is certain is that only through the application of appropriate techniques of data collection, analysis, experimentation, and interpretation will the field shed its persistent antiquarian image.

Many feel that archaeology is a humanistic pursuit that requires little if any consideration of theory. Just as many feel that it is a scientific one. In reality it is a mixture of both. But it does not really matter, as an archaeologist, whether you consider yourself a humanist or a scientist, both paradigms involve some kind of theory to guide their actions, for it is theory which truly separates the maritime archaeologist from the treasure salvor and the amateur. It is theory that brings us closer to our terrestrial counterparts and it is theory that can improve the approach and quality of the research that is conducted.

When asked which theoretical approach, either historical particularist or anthropological, was best suited to the study of shipwreck sites, 31% felt an anthropological approach was better suited, while only 16% chose the historical particularist approach (see Appendix D, QD3). These results suggest anthropology is the way forward; however, 24% indicated that both approaches have applicability to the study of shipwreck sites.

Finally, it must be stressed, if theory is to have more than just a superficial and tangential impact on the field of maritime archaeology as a whole, then it must be related back to the actual practice of archaeology. There will always be the need to *do*

maritime archaeology underwater, and the sensible application of theory to practice is a critical step in the effective teaching of the subject to future students.

CHAPTER 4: AMATEUR ARCHAEOLOGY AND THE SPORT DIVER

"The archaeologist of today can blame no one but himself if underwater sites are left to amateurs." George Bass (1966: 18)

The impact of amateurs and sport divers on the field of maritime archaeology underwater cannot be understated. From the amateur sector came such pioneers as Peter Throckmorton, Colin Martin, Anders Franzen, Alexander McKee, Richard Steffy, Ole Crumlin-Pedersen, and Frederic Dumas. Without question, more historic wreck sites have been located and investigated by amateur archaeologists, fishermen, and sport divers than by professionally trained underwater maritime archaeologists. But what should be the future role of these groups in the study of maritime archaeology?

The following sections of this chapter will examine some of the issues in maritime archaeology underwater that involve these various groups. The first section will look at the past role of the amateur and how it seems to be changing with the rise of professionalism. The active role of amateurs in the United Kingdom is presented as one example of the influence this group has on the field. The following section examines the impact of the sport diving community and how archaeologists are working with, and in some cases against, this group. Lastly, this chapter looks at the changing roles of cultural resource managers as they try to work with these two groups. Again, developments in the United Kingdom are used as examples.

THE ROLE OF THE AMATEUR IN MARITIME ARCHAEOLOGY UNDERWATER

Before proceeding further with this discussion it is important to define what an amateur archaeologist is. An amateur is a person who practices, undertakes, or is involved with the archaeological investigation of a site for the love of it, having few or

no academic credentials in the subject. Although amateurs and avocational groups may have some level of formal training in the techniques and principles of archaeology underwater, like that offered by the Nautical Archaeology Society training program, they generally tend to view archaeology as a hobby to be conducted in their spare time. In the past there have been times when professional archaeologists have used the term "amateur" in a derogatory sense, but that is not the intent here. In fact, there are numerous examples of amateur archaeologists having more experience and expertise in a particular subject or area than most professionals. There are additional examples that demonstrate how the work of a few amateurs has been instrumental in helping to preserve the maritime past.

Historically, amateurs have played a dominant role in the early development of maritime archaeology underwater. Bass (1966) cites the work of Tailliez and Haag in Switzerland as shining examples of amateur archaeologists who have done good work. He has stated:

> "It was the amateur, the diver, and not the professional archaeologist who led the way, found the sites, pioneered their excavation, and showed the promise of the future. We owe these amateur archaeologists a debt of gratitude in spite of errors they may have made." (Bass 1966: 18)

But Bass also makes the point that both of these men later wished adequately trained archaeologists had been involved. In the 1950s some concern was voiced that amateurs were actually going to lay the foundations of what was termed this "new branch of archaeology" in the absence of professional involvement (Diolé 1952). The informal structure of maritime archaeology underwater in its early days opened the way for many novices and non-archaeologists to become heavily involved. As was mentioned in Chapter 2, Colin Martin and Richard Steffy are prominent individuals who came into the profession from amateur backgrounds but who eventually became

two of the field's top scholars. Peter Throckmorton can also be considered an amateur archaeologist who had the vision and enthusiasm that was missing in the professional community and it was Ole Crumlin-Pedersen's non-archaeological training as a naval engineer that made him the best candidate to assist with the Skuldelev vessels.

Today, amateur maritime archaeologists are still heavily involved with maritime research, especially in Britain. Of the 72 projects conducted in England, Scotland, Wales, and Northern Ireland during 1997 and 1998, almost a third were led by amateurs (Flatman and Blue 1999). But the days when people like Peter Throckmorton, Colin Martin, and Richard Steffy could easily cross over into the professional arena of maritime archaeology underwater seems to be waning. Because maritime archaeology underwater has become more formalized, institutionalized, and professionalized, the opportunities for an amateur to participate in a significant way and take a leading role on a major research project are becoming less likely. Although increased professionalism is a positive move forward in archaeology as a whole, it does have its drawbacks. Restricting the involvement and influence of amateurs in academic projects has the negative effect of limiting the influx of different and innovative ideas, ideas that often lead research into new areas of inquiry.

When asked if someone from a non-professional background, like Richard Steffy, could enter the field today George Bass replied:

> "That is one thing that won't happen in the future, I'm afraid, and that's too bad. Some of the people who have been key players in our program in Turkey we wouldn't even take today because they're not archaeologists. They don't have the right credentials. But in the early days, when I went to Yassi Ada, it was sort of the first 10 people who came and knocked on my door and said, 'I'm a skin diver can I go with you?' They sort of helped to develop this whole field." (Appendix E - Section I: lines 319-324)

Colin Martin also shares these sentiments of regret. When asked if he could repeat today what he did in the late 1960s he replied:

> "I don't think I probably could. I think it would be very difficult. I think it would be very difficult for somebody to walk in off the street as effectively to what I did at this university [St. Andrews] and say 'Hey I've got this idea, I think it's a good one, will you support me?'....but the nature of universities is that they should be looking for new things, and if they are going to be so cautious that they only appoint so-and-so because he has such-and-such and such-and-such a background, etc., etc., then you're not going to have these people who have got the brilliant ideas that no one has ever thought of before. I think it's a great, great pity, but I think you're right, I don't think it would happen again today." (Appendix E - Section IIIa: lines 519-531)

But amateur involvement in maritime archaeology underwater does present some problems for the professional archaeologist and those studying to be professionals. First there is a fear that unpaid amateur volunteers are depressing wages and work opportunities for students. Why pay a student, or anyone else for that matter, when someone will do it for free? Given the budgets many project managers have to work with, the use of unpaid volunteers becomes a highly attractive option that is easily justified. Secondly, it has been shown that the level of avocational involvement in the past has hurt the professional credibility of the field and potentially could continue to do so in the absence of professional oversight (Goggin 1960). As the above quote from Bass (1966: 18) suggests, too much amateurism and too little professionalism can have a negative impact. Trained land archaeologists did not establish the study of maritime archaeology underwater and the errors that were made by this field's pioneers created a false perception in the eyes of the mainstream

community that underwater archaeology had limited academic value (see previous discussion of John Goggin's 1960 article in Chapter 2).

Amateur Archaeology In The United Kingdom

One of the more disappointing developments in the field of maritime archaeology in the United Kingdom has been a decline in the overall number of professionally organized research projects. In 1999 there were no formally organized, large-scale excavation projects in England and Wales, and only one in Scotland at the Duart Point wreck (Martin Dean, personal communication, 1999). To fill this void, shipwrecks are being mapped and studied by a host of commercial divers, amateur groups, and diving clubs. It is estimated that in 1992 approximately 70,000 sport divers undertook 1.5 million dives around the coast of the United Kingdom (English Heritage 1999). This is in sharp contrast to the total of professional diving archaeologists, which numbers less than 20. To help direct the efforts of amateurs and sport divers, the ADU in Britain has over the last several years tried to shift the objectives of many amateur projects away from destructive excavation to non-intrusive survey and recording (Oxley 1996). But the bigger problem still remains, a lack of professionally led projects and an over-representation of avocational groups.

So why has this situation developed? If one looks at the current diving regulations placed on professional diving archaeologists, one potential explanation comes to light. The days of simply strapping on your dive gear and working underwater are long gone for the professional diving archaeologist working for either a university or research institute. Today's world of injury litigation and governmental bureaucracy has hindered the professional archaeologist by placing a multitude of health and safety regulations on the field. This in turn has created a disincentive to any researcher or student who wants to conduct or participate in an underwater project. Amateur, non-professional groups do not have to comply with these same restrictions; therefore, it is easier for them in this regard to undertake an underwater investigation.

A new code of practice for scientists and underwater archaeologists, issued by the Health and Safety Executive (1997), was recently issued making it a little easier for professional archaeologists to work along side amateur divers on a project, but the burden has not been changed significantly.

Another hindrance for maritime archaeology underwater in the United Kingdom is the unequal funding for underwater projects compared to terrestrial projects. Due to inherently higher costs for equipment, labor, and artifact conservation, undertaking a typical underwater excavation tends, on average, to be much more expensive than a comparable land excavation. Cost comparisons of this kind are simplistic and generalized, but it seems clear that there is much more involved when a person wants to excavate underwater compared to excavating on land. To date, the Duart Point wreck in Scotland is the only project in the United Kingdom to utilize funding normally used for land projects. In fact, the lack of professionally run underwater projects in the UK has forced the ADU to send its members to Australia to work on the wreck of the *Pandora* in order to get the necessary training they need in underwater excavation techniques. Although there has been a slight rise over the last several years in the number of universities providing professional training in underwater archaeology, such as the programs at the University of Southampton and the University of St. Andrews to name just two, there is still a lack of opportunity for employment after graduation. Apparently large-scale projects, like that of the *Mary Rose,* are a thing of the past and the career options available to new graduates seem limited.

The Nautical Archaeology Society training program has been effective in educating the general sport diving community about the basics of underwater recordation and excavation techniques and the need to protect wrecks, not pillage them. More than 3,000 divers have taken the preliminary training course (Part I) which is an excellent first step in creating understanding between archaeologists and divers (English Heritage 1999). But the NAS training program has remained a largely

amateur training vehicle because it does not attract those individuals who desire to become professional archaeologists through their higher training programs (Part III and Part IV). One reason for this is competition with universities, like St. Andrews, which offer higher degrees in underwater archaeology and maritime studies. Why should someone interested in a career as a professional archaeologist choose the higher NAS training over a university degree which is more professionally and academically portable? The NAS higher training courses require a significant level of effort for completion and when this is compared to the benefits of a university degree it seems unrealistic.

While the basic NAS training program is of obvious benefit to the avocational diver, it is not a program suited for someone interested in becoming a professional archaeologist. Modern professional archaeology is based on scientific research methods and principles that cannot be learned on a weekend training course. These courses are very successful in training divers to assist in an excavation or survey, but they do not qualify anyone to actually organize and conduct a professional project. Excavation, while an important component of archaeology, is only one small part of investigating the past. An effective archaeologist needs to possess other research skills as well as a basic knowledge of the cultural history of the site he/she is investigating. This is something the NAS basic scheme does not itself provide. As will be shown in Chapter 6, the current standards to become a registered professional archaeologist require an academic degree and experience.

The historic involvement of amateur archaeologists and commercial divers in the development of maritime archaeology underwater has helped to preserve Britain's maritime past. The recent designation of the *A-1* submarine as a protected wreck site, located off the southern coast of England, is one of several cases where a commercial diver/ amateur archaeologist took it upon himself to seek protection of an important historical resource that was under threat from trophy-seeking sport divers. The story of

its listing deserves telling because is illustrates the positive influence of the amateur sector.

The first ever wholly British designed and constructed navy submarine, the *A-1*, was launched in July of 1902 (Archibald 1971). Less than two years later she was run down in the Solent by the *Berwick Castle* while participating in naval maneuvers. All of her six-man crew were lost. The *A-1* was raised a month later and eventually she was used for anti-submarine practice. It was during an experimental anti-submarine operation that the vessel was finally wrecked in August of 1911, off Brackleshan Bay, approximately 10 miles east of Portsmouth.

Attempts were made to relocate the wreck but all failed, most likely due to the fact that the area searched was actually 8 miles west of the vessel's true location. The *A-1* remained lost for the next 70 years, until she was found by a fisherman's net in 1989. The fisherman notified Martin Woodward, a commercial diver who also runs the Bembridge Maritime Museum on the Isle of Wight. Mr. Woodward took an active interest in the wreck and initiated a program to purchase the submarine from the Ministry of Defense. This process took six years and required the new owner to submit periodic reports every six months concerning the status of the vessel's condition and what, if anything was being done to it.

During this time, attempts were made to try and secure funding to possibly raise the wreck, but necessary financial resources never materialized. Despite this setback, Mr. Woodward remained an advocate for the *A-1*'s preservation and continued to monitor its condition. As the location of the wreck became more widely known amongst the local sport diving community, more and more divers started to visit the site. Some treated the find with respect and left it in the same condition as they found it. Others were not so benign and started to pull the submarine apart to fill their own trophy cases, or sell what they had taken for scrap. Mr. Woodward tried to discourage this destructive behavior by posting a notice on the wreck making divers

aware of its historic importance. Still, some individuals ignored the notice and carried on the slow destruction of the site.

Eventually the process of divers picking the *A-1* apart started to take its toll on the vessel. The conning tower control panel had been lifted, many of its exterior lights had been removed, and a loading hatch was even ripped open to gain access to the interior of the wreck. Mr. Woodward felt that the wreck needed additional protection and initiated the process of getting the site designated as a historic wreck. Through coordination with the ADU, the submarine was designated within a few months. Mr. Woodward plans on creating a video record of the site, but currently there are no formal plans for any archaeological investigation of the wreck. Because the submarine is now designated, the ADU will undertake periodic visits to the vessel to monitor its condition and to generate their own record of the site.

There does appear to be a double standard concerning the treatment of terrestrial sites compared to that of submerged sites. If a Victorian or Medieval church of historic significance is threatened, there is likely to be a mass mobilization by the local community for its protection, but apparently very few view what is happening to shipwrecks with the same concern. One possible explanation for this situation is that unlike most land sites, shipwrecks lack a surrounding local community and have a low visibility in the cultural landscape. Local, amateur historians and antiquarians play an important role in site stewardship, and local pride is a strong motivating force in the active preservation of historic properties. As time passes, a historic landmark becomes a familiar part of the cultural landscape, becoming an element that helps to define the local community identity. The ruined cathedral in St. Andrews has become a familiar symbol of that town, one which most of the people of Fife in Scotland easily recognize. But because submerged sites are not as readily visible in the landscape it is harder for people to closely identify with them. They tend to be lesser known and more easily forgotten. Out of sight, out of mind. It is much easier to protect something that is seen every day by many, than something that is rarely seen by only a

few. If archaeologists can increase the "visibility" of threatened wreck sites and present them to a broader audience, then the public's drive to protect these properties is likely to increase as well.

Amateur archaeologists who become involved with maritime archaeology underwater should be given a great deal of credit for filling a void created by a lack of professional involvement. Their enthusiasm and vision helped to drive the early growth of the field. Without them many of the most significant underwater discoveries to date would not have been made. But there has been a high cost paid for this involvement as well. Just as there are good and bad professional archaeologists, so too are there good and bad amateur archaeologists. Mistakes that were made through either lack of training, education, or experience, such as those made by Dumas and Cousteau, gave land-based archaeologists the impression that maritime research was of a lesser quality (Goggin 1960; Bass 1966). The responsibility for maritime archaeology's belated start as a professionally accepted academic field of study rests with the archaeological community itself, which was slow to jump in at the early stages of the field's development, giving the sub-discipline this initial and somewhat persistent image of unprofessionalism.

THE IMPACT OF SPORT DIVING ON MARITIME HERITAGE

Shipwrecks are some of the most popular dive sites among sport divers (Ferrari 1994b: 9). Most local dive shops and dive magazines provide information on where to locate submerged wreck sites. But what impact does sport diving have on maritime archaeology underwater and the underwater archaeological record? Peter Throckmorton is quoted as saying "In twenty years, sport divers have done more harm to archaeological sites in the sea than all the forces of nature in three millennia." (Norton 1999: 260). On the other hand, however, more submerged archaeological sites have been identified by sport divers than by archaeologists. While there are endless examples of wrecks being slowly picked apart in the popular pursuit of claiming dive

souvenirs, like in the case of the *A-1* submarine, sport divers also play a major role in helping archaeologists excavate, study, and preserve shipwrecks. It seems obvious that the impact of this group on our maritime heritage is a double-edged sword, but does it have to be? If the destructive tendencies of sport divers could be channeled into more constructive activities, archaeologists would have a very powerful ally in the fight to preserve submerged cultural resources. In order to do this the archaeological community needs to give more attention to understanding the current attitudes of sport divers if they are to change the prevailing mindset.

One example of research in this area was conducted in Britain at the University of St. Andrews (Ferrari 1994a & 1994b). A survey involving over 300 sport divers was undertaken to assess how this group was influencing the formation, stabilization, and preservation of submerged cultural deposits in the coastal waters of the United Kingdom. Participants were asked questions covering a range of topics, including their understanding of the 1973 Protection of Wrecks Act, interest in maritime archaeology, and the activity of searching for new wreck sites to dive on. The results of the survey identified several predominant trends. These included:

1. A strong interest in becoming involved with scientific/professional archaeological projects,
2. The retrieval of dive souvenirs was not a high priority,
3. A moderate level of knowledge concerning the 1973 Protection of Wrecks Act and the feeling it was an effective way to protect sites, and
4. Increasing use of equipment designed to help locate wreck materials (metal detectors, sub-bottom profilers, etc.).

The study concluded that there was general sympathy within the sport diving community for preserving wreck sites. But the study also identified a minority who were disinterested in the concepts of conservation and preservation, regarding any materials found on the seabed, even artifacts, as fair game.

Although sport divers show a strong interest in becoming involved with archaeology, it seems likely they would also show an equally strong desire to become involved with the commercial exploration and salvage of a historic wreck site. It is not the archaeology they seem primarily interested in, but the wreck itself. And while it is encouraging that a moderate number of divers are aware of the existence of the 1973 Protection of Wrecks Act, they seem misinformed concerning its effectiveness. As will be shown in the following chapter, in many countries there are significant problems with their current historic preservation legislation, and in Britain this legislation is quickly becoming obsolete. The most disturbing finding of the study involved those who actively looked for new wrecks. These divers tended to be higher qualified, better informed, dived more frequently, were more inclined to keep the discovery of a wreck quiet, and were generally dissatisfied with the protective legislation (Ferrari 1994b: 20). Although in the minority, it only takes a small number of aggressive sport divers to cause a tremendous amount of damage in a short period of time.

More studies like this one, which examine the attitudes of the sport diving community, need to be undertaken, especially in those regions where treasure hunting and salvage are the most visible. Understanding these attitudes will allow archaeologists to effectively address and change some of the more destructive behaviors of sport divers. It should be pointed out that it is not the majority of sport divers that need to be condemned, only the rogue elements. At the same time, care must be taken by marine preservationists that they are not infringing on a diver's freedom to dive. The aim of public involvement with sport divers should be selling the ideals of historic preservation, not artifacts. Cooperation in the development of underwater programs, like underwater tourism, will allow both sport divers and archaeologists to share in the enjoyment and preservation of our maritime cultural heritage.

One of the most inventive solutions being developed to encourage the preservation of shipwrecks has been the creation of underwater historic "trails." Australia is a leader in this area, fostering an effective tourist program that aims to integrate scuba divers and maritime heritage. In 1990, Heritage Victoria and its maritime heritage unit set up a historic shipwreck trail along the Great Ocean Road between the towns of Port Fairy and Moonlight Head. Stretching for more than 100 kilometers along the southern coast of Victoria, this trail system contains 25 markered sites, 200 recorded sites, and is suspected to have as many as an additional 500 unrecorded shipwreck sites. The markered shipwrecks are located on a map which is included as part of a dive package that also contains historical background information, survey plans, illustrations, and directions on how to find them underwater. The literature also contains facts concerning preservation regulations and warns those who violate them of the potential penalties. Underwater signposts are situated on most of the sites and local businesses, dive clubs, and other diving organizations are encouraged to sponsor a stewardship program by "adopting" certain sites. For very significant or threatened wrecks a special permitting scheme is in place to help monitor and control public access. Underwater historic shipwreck trails represent a fantastic opportunity for all to share in the maritime heritage and create positive working relationships that satisfy the wants and needs of both sport divers and archaeologists. Similar programs are being developed for the Duart Point wreck, the wreck of the *Dartmouth*, and the Needles Site.

The challenges before the archaeological community remain arduous indeed. The popular myths surrounding shipwrecks still live on within the general sport diving community. All one has to do is pick up a popular dive magazine to read any number of stories concerning a dive club's latest visit to an historic wreck site and their recovery of a whole range of dive trophies. Britain's best-selling dive magazine *Diver*, with a circulation of 50,000 issues in 1991 (Ferrari 1994b: 2), published an article in 1998 by Rex Cowan which clearly characterized the new UNESCO proposals for regulating historic shipwrecks as an immediate threat to diver freedom. He states:

> "UNESCO has been trying for years to control the long-established freedoms of discovery and excavation of historic wrecks by divers, whether amateur or commercial. The current draft convention is the third attempt by their dominant group of archaeological and heritage 'experts' to create a new international legal framework that will affect amateur divers and professional wreck hunters all over the world." (Cowan 1998: 40).

Coming from a former member of the Secretary of State's Advisory Committee on Historic Wreck Site, this statement would seem to carry a certain amount of credibility. But that is not the case. The UNESCO Draft Convention on the Protection of the Underwater Cultural Heritage will not be an infringement on those divers whose intention is to enjoy a dive on an historic wreck site. Most of the wrecks that this legislation is designed to protect are too deep to be reached by the majority of sport divers anyway, and of those who have actually read the UNESCO proposal, the majority (66%) feel it will have no effect at all (Appendix D, QB4). Only a very small proportion (2%) held to the belief that the convention would actually move sport divers closer to archaeology and away from commercial salvage.

While it may be very effective legislation with little or no real impact on the activities of sport divers, if the UNESCO proposal is perceived to be a hindrance to the freedom of divers then there is a real danger of a severe backlash against the historic maritime preservation movement. In effect, something designed to help save the archaeological record could actually end up hurting it. This would be a major setback for maritime archaeology and erase many years of progress. Although there may be sympathy for wrecks, the same cannot be said for archaeologists. Articles, like Rex Cowan's in *Diver* and others, are portraying archaeologists as selfish exclusionists who sit inside their ivory towers, seeking to hoard the best dive sites for themselves. The real battleground of the future struggle between professional archaeologists and

treasure hunters will be within the sport diving community. In the past, archaeologists have not been as effective as treasure salvors in winning over the hearts and minds of sport divers. As far back as 1978, Jim Munch identified the problem of archaeologists failing to convince the public about the value of maritime archaeology over treasure hunting (Cockrell and others 1981), and it remains very much the case today.

However, there does seem to be a growing movement by cultural resource management programs to educate, integrate, and involve more sport divers in archaeology (Dean et al. 1995; Cooper 1996; Darrington 1999). These efforts can provide archaeologists with yet another opportunity in which the value of research and the cost of salvage can be effectively communicated to the sport diving community.

CULTURAL RESOURCE MANAGEMENT AND THE PUBLIC

A recent survey of public opinion on archaeological heritage in British Columbia found there was a high level of interest and support for archaeological and heritage conservation (Pokotylo and Guppy 1999). But this survey also indicated that there was a high level of misunderstanding about the archaeological record and the legislation that protects it. One of the reasons archaeology exists is because of public support and interest, but if there is misunderstanding, misconception, or miscommunication, this support, which is vital to the very survival of archaeology, is threatened. Public education and involvement is a never-ending obligation that archaeologists hold. Although all archaeologists should share this, cultural resource managers are most often the ones who interact with the general public. So how is CRM meeting this challenge?

As previously mentioned, cultural resource managers in Australia have been effective in promoting maritime heritage in the public sector through the creation of underwater historic shipwreck trails. In the United States there are numerous state run programs that try to include a wide range of groups, including divers and non-divers

(Hopkins 1985; Harris 1990; Cooper 1996). And in Britain the work of the ADU has tried to expand its mandate from the protection and management of maritime heritage to building effective working relationships with the public through education and participation (Darrington 1999).

A recent example of how the ADU is working towards these ends was the SUBMAP Project, an archaeological investigation of the *Resurgam* initiated in 1996. This two-week-long survey project of the first powered submarine in Britain was designed to gather detailed information that would be used to formulate an appropriate management plan for the wreck. The project also served as a means to introduce and educate the wider diving community to the principles and techniques of underwater archaeology. The success of SUBMAP can be measured in the fact that over 100 amateur divers and 40 professional archaeologists and scientists were involved with the project.

But even a public involvement exercise like this one cannot solve all of archaeology's problems. Recently an unfortunate development has occurred in the case of the *Resurgam* wreck, one that clearly underscores the never-ending threat historical maritime resources face from miscreant salvors. In April of 1999 the ADU returned to the location of the site to investigate reports from local divers that the site had moved. It was thought that the site was suffering from destabilization caused by a shift in its local tidal environment. When the Unit arrived they immediately noticed that the wreck had moved considerably, several meters from its original location. Upon closer examination it became clear that some time within the previous year an unsuccessful attempt had been made to steal the entire submarine! ADU divers found the remains of a broken lifting cradle and recorded severe damage to wooden cladding on the exterior of the wreck and recent crushing damage to the coning tower.

The Archaeological Diving Unit is an important influence on how maritime archaeology underwater is conducted in the United Kingdom. They have made

significant progress in promoting multidisciplinary research, public education, safer working practices, and integration with the wider research community (Darrington 1999: 44). Promoting higher professional standards and ethics has been another important objective. Their efforts are helping to reduce the destructive influence of treasure hunting and inappropriate salvage practices in the United Kingdom as well as helping to educate sport divers about historic preservation legislation and the appropriate treatment of historic wreck sites. Clear evidence of this is the number of cases where wreck sites are being reported. Five years ago the number of cases handled by the Receiver of Wreck in Britain was just under 50. In 1999 the number of new finds alone was in the hundreds (Veronica Robins, Receiver of Wreck, personal communication, 1999). This increase in reported finds can be attributed to the combined efforts of the Receiver of Wreck, the ADU, the NAS program, and the Advisory Committee on Historic Wreck Sites, to educate the general public concerning the Merchant Shipping Act and its legal requirements. The majority of these new cases involve sport divers who are now reporting what they find and recover on the seabed.

But one key element in the success of any historic preservation program is governmental support. Underwater archaeology is an expensive undertaking and it requires a substantial commitment of resources. As the number of protected wreck sites grows, so will the workload of heritage managers. If the current rate of increase continues, it is clear that in the near future the United Kingdom government will have to substantially increase its funding of the ADU. To date, however, the government's attitude towards actively preserving the United Kingdom's maritime heritage can best be described as minimalist (Darrington 1999: 44). Within the last few years there have been some encouraging developments, such as the two policy papers published by English Heritage and Historic Scotland on the conservation of underwater heritage (English Heritage 1999; Historic Scotland 1999), but more time is needed to determine if these efforts will prove effective in the long-term.

Through the efforts of cultural resource management groups, such as the SCRU, ADU, and the Western Australian Museum, and other organizations like the Nautical Archaeology Society, attitudes of the sport diving community are starting to change with the realization that shipwrecks are an important, non-renewable, cultural resources, not simply a treasure trove waiting to be plundered for its dive trophies.

SUMMARY

Historically, amateur archaeologists and sport divers have had a profound impact, both positive and negative, on the development of maritime archaeology underwater, especially during the early years of its development. In trying to answer the question posed at the beginning of this chapter concerning the future role of these groups, several key points have been identified. These include:

1. Restricting the involvement and influence of amateurs in academic projects could have the negative effect of limiting the influx of different and innovative ideas.
2. Numerous amateur investigations will continue to be conducted, regardless of professional involvement and supervision.
3. If sport divers are excluded from diving on historic shipwreck sites there is the real danger of a public backlash against archaeologists, therefore continued cooperation is essential.
4. Research projects that involve sport divers and amateur archaeologists encourage positive attitudes towards marine preservation and stewardship.

If maritime cultural resource managers are to continue their outreach programs that help to educate and inform the public, then there must be a long-term financial commitment. If sport divers are not allowed to participate in the study of our maritime past, it is likely they will participate in its exploitation through the collection of dive trophies and treasure salvage.

CHAPTER 5: THE GREAT DEBATE - ARCHAEOLOGY VERSUS TREASURE SALVAGE

"LEAD WANTED!!!!! PAYING TOP PRICES!!! MUST PRE-DATE 1750!!!! CAN BE SHIPWRECK SHEATHING, INGOTS, SHEETS, ETC. OR FROM OTHER SOURCES!! NEED AT LEAST 10-20 LBS. AS SAMPLE FOR TESTING. HURRY, THE MONEY IS AVAILABLE NOW!!! CONTACT US AT 207-879-1758 OR E-MAIL"

(Sub Sea Recovery website, 1999: www.subsearecovery.com/want.html).

This internet advertisement sums up many of the things that professional maritime archaeologists find disagreeable concerning the commercial salvage of historic shipwreck sites. The emphasis on money and the disregard for context, age, or provenience are enough to make any historic preservationist cringe. But in the eyes of salvors, and a significant proportion of the general public as well, they have as much right to access historic shipwrecks located on the seabed as anyone else. Because they are not doing anything illegal, any effort to restrict their activities is seen as a direct attack on their livelihood. So who is right? This issue has been debated since the 1960s and it continues to be a topic heatedly discussed by several interest groups at conferences, in the media, in the classroom, and even in the courts. Salvors, such as Mel Fisher, Robert Marx, Robert Sténuit, and Greg Stemm, have caused archaeologists to reflect on some very difficult questions. They have also played a major role in how the general public perceives underwater archaeology. This topic is now commonly referred to as the "Great Debate" and currently it is a dispute that archaeologists seem to be losing (Cockrell 1990; Carrell 1996; Babits and Van Tilburg 1998).

The following sections explore in some detail the "Great Debate" between the salvage industry and the archaeological community. The first examines the challenges facing maritime archaeologists involving such issues as legislation, public education

and communication, and the public's commonly held perception of shipwrecks and their value. This is followed by a discussion of commercial archaeology as a viable middle-ground approach, bridging the gap between cultural resource managers and treasure salvors. The next section addresses the question of age as it relates to site significance, an issue frequently raised by salvors in defense of exploiting recently lost wreck sites. Finally, the powerful influence salvage has had on the field of maritime archaeology is reviewed.

The long history of marine salvage, with its early legal affirmation, highly publicized stories of reclaimed riches, and well-organized industry, has given this practice enormous credibility and legitimacy. It is an institution and industry that cultural resource managers and historical preservationists are finding hard to deal with and even harder to overcome. If archaeologists are ever to win the "Great Debate" with marine salvors and treasure hunters then they must resolve some of the obstacles currently hampering their efforts. One of the most pressing problems inhibiting the work of shipwreck preservationists is the current confusion surrounding historic shipwreck legislation.

PROBLEMS IN LEGISLATION

The most substantial roadblock for those concerned with protecting maritime heritage is the current legal environment and the incompatibility between historic shipwreck preservation legislation and marine salvage law. In most Western countries there is some form of legal protection with only a few minor exceptions, such as Belgium. But there are significant flaws with many of these laws. Recently there have been legal setbacks in the United States concerning the issue of abandonment as it applies to a historic shipwreck site. In other countries when shipwreck protection legislation was passed there was not a corresponding modification made to existing salvage law, creating a situation of legal incompatibility. Finally, even when laws are

passed there is often no provision made to create a system of enforcement; therefore, the overall effectiveness of legislation is greatly reduced.

Within the last five years there have been some disturbing legal setbacks for maritime cultural resource management as the salvage industry has re-asserted its claim to recover the cargoes from historic shipwrecks. One case in particular, involving the *Brother Jonathan*, has effectively set back the efforts of the United States to protect and preserve historic shipwrecks by 20 years (Pelkofer 1996; 65).

In 1865, the *Brother Jonathan* sank off the west coast of California. When Deep Sea Research Inc., a salvage company, laid claim to the wreck the State of California stepped in and prevented this by claiming state ownership under the provisions of the Abandoned Shipwreck Act. But this case soon brought to light a major weakness in the legislation, one concerning the issue of expressed abandonment. Expressed abandonment requires that abandonment of a shipwreck be proven by either a statement made by the owner of the vessel or by the affirmative action of the owner. Because historic wreck salvors began to successfully track down the still-existent insurers of wrecks and offer them a percentage of any goods recovered through salvage, this issue has now returned to haunt those who worked so hard to pass the legislation. In July of 1996, the Ninth Circuit Court of Appeals in San Francisco upheld a previous decision by a district court judge stating that the State of California had failed to prove expressed abandonment of the wreck and awarded salvage rights to Deep Sea. This case was recently settled when the two parties involved agreed to sign a stipulation for entry of judgment in the Federal Court in San Francisco, ending the litigation of the *Brother Jonathan* lawsuit. Ownership of the vessel and the associated artifacts recovered in three seasons of diving, as well as all artifacts remaining on the sea floor, has been awarded to the State of California. Deep Sea recovered a large number of gold coins, and in recognition of its salvage efforts, it was awarded approximately 80% of the coins. The remaining coins and the non-monetary artifacts will be used by the state for historic study and display purposes. Other parties to the

suit, including the United States, Wells Fargo and Company, and a number of heirs of persons lost with the sinking of the ship, will retain rights to prove ownership of items recovered by Deep Sea Research in future operations, which will be conducted under permit from the state. The federal court has retained jurisdiction to resolve any disputes concerning the terms of the agreement and to maintain an injunction zone surrounding the site of the wreck (Peter Pelkofer, Senior Counsel, California State Lands Commission, personal communication, 12 March, 1999).

Incompatibility between long-standing Admiralty law and newer historic shipwreck preservation legislation has become another legal loophole commonly exploited by the treasure salvor. One clear example of this incompatibility is in the United Kingdom, where the Merchant Shipping Act, which is currently based on amendments dating back to 1894 and 1906, is still in effect. Under the MSA the salvage of any historic wreck not listed under the 1973 Protection of Wrecks Act is legal, as long as those materials are reported to the Receiver of Wreck. The 1973 Act does not override the MSA and this has had a significant effect on how the 1973 Act has been administered.

The Receiver of Wreck is not a cultural resource manager, but instead operates on behalf of the Department of Transport and is located within the Coastguard Agency. All materials recovered from the seabed must be reported to the Receiver of Wreck, even artifacts recovered from sites designated under the 1973 Protection of Wreck Act. The Receiver of Wreck then investigates the ownership of these items. The owner has one year to come forward and prove title to the property. If no claim is made at the end of one year, the materials become the property of the Crown and the Receiver of Wreck is required to dispose of them through sale or auction. In some cases the recovered materials may be given back to the finder in lieu of a salvage reward. Historic wrecks are defined by the MSA as those that are over 100 years of age. A genuine attempt is made to offer materials recovered from these types of wrecks to registered museums in order to promote public accessibility, but they must

pay for them. Today in the United Kingdom it is still perfectly legal for anyone, whether they are a trained archaeologist or not, to remove historic cultural materials from a submerged shipwreck as long as those materials are reported.

Historically, the Receiver of Wreck has not always been a friend to the archaeological community. When the *Mary Rose* (1545) was excavated the Receiver of Wreck claimed his traditional 7.5% of the value of the personal effects, and 25% of the value of bullion, from the Mary Rose Trust (Joint Nautical Archaeology Policy Committee, 1989: 20). Because there still remains the prospect of claiming a salvage reward, the MSA actually encourages the removal of items from a wreck site without any concern for an item's specific provenience. This goes against the most basic of archaeological principles concerning depositional context and spatial integrity. The MSA could act as an effective mechanism for the reporting of wrecks and archaeological finds, but regrettably there has been little movement to make it so (Oxley 1996). Although there has been a steady increase in the number of cases reported to the Receiver of Wreck, as a whole there is still a general lack of thorough reporting procedures in the United Kingdom.

In an attempt to further the reporting of shipwreck sites and finds, Veronica Robbins, the current Receiver of Wreck, has proposed a general amnesty to encourage people to come forward with any information they may have without fear of prosecution. One problem with this move is that it assumes people are not reporting finds because they have an anxiety of prosecution. This has not been proven; in fact, it can be argued that there is widespread ignorance of the MSA and few are truly concerned with being caught or punished. What is needed instead is a positive incentive to report. People should understand that they have something more to gain by reporting finds rather than selling them. This is an area where archaeologists can play an important role by creating an atmosphere of inclusion, where individuals believe they are a part of something worthwhile. One of the barriers between the archaeological community and the general public is that archaeologists are considered

by some to be exclusive and elitist. They want to hoard the archaeological record for themselves. This is an image that must be changed.

A project highlighting some of the weaknesses of the current legislation in Britain is the work being conducted on the Salcombe Cannon Wreck. This site was initially described in 1992 by a member of the South West Marine Archaeological Group (SWMAG) as simply a cannon scatter with no visible structural remains. Later examination of the site in 1994 found gold artifacts exposed as a result of changes in the local seabed. SWMAG immediately began a survey of the site to accurately plot the exposed artifacts. It was decided that the objects posed too tempting a prize for treasure hunters and the recorded items were lifted. Analysis of the recovered coins and jewelry identified them as Moroccan, dating from 1510 to 1636. Maker's marks found on a pewter bowl and a brass seal may shed some light as to the identity of the Salcombe Cannon wreck itself. The site has the potential to contain important archaeological information concerning the nature of trade between Morocco and England during the sixteenth and seventeenth centuries if further evidence of the shipwreck's origin and age can be gathered (Lawrence, Mark, 1998, Guide to Historic Wreck Sites. Archaeological Diving Unit Web Site http://www.st-and.ac.uk/institutes/sims/deswreck.html, University of St. Andrews, St. Andrews).

Annabel Wood, a member of the ADU, is advising SWMAG on the excavation of the site and the disposition of the recovered artifacts. SWMAG has also been given a £12,000 grant to pursue the archaeological investigation of the site. This money will enable the team to carry out a more professional site investigation for 2000 and into the future. But is this proper? Should funding be given to an amateur group to conduct "research" with no professional archaeologist working on-site? Although Ms. Wood is advising the Licensee and has developed a project design for them to follow, she is not actually supervising the work itself. To find out after the fact that the excavation of a site was done improperly is not an effective method of managing maritime heritage.

Last year an agreement was reached with the British Museum to purchase the items from SWMAG; however, this prompted an inevitable disagreement between the two parties involved concerning how the recovered artifacts should be valued, a problem with no easy answers. Should items be assessed by their *market* value (actual price paid at auction) or by their *appraised* value (price determined by an expert who may be a staff member of the museum involved)? This problem has been partially resolved, with all the materials raised before 1998 being given to the British Museum in exchange for a salvage award of approximately £100,000 being given to the SWMAG (Annabel Wood, Archaeological Diving Unit, personal communication, 22 March, 2000). But it is unclear what salvage awards will be given in the future. The notion of donating the recovered items is rarely given consideration. In the United States, terrestrial archaeologists typically have to pay the museum to curate recovered materials, recognizing that there are long-term costs associated with the proper maintenance of a complete collection. Artifacts are not kept for just a few years, in truth they should be curated *ad infinitum*. If this is done for sites on land why should it be any different for those underwater?

What is even more problematic about the preservation of the Salcombe Cannon Wreck is highlighted by a recent case in 1998 where two groups of divers were caught illegally diving on the site. Although the perpetrators were identified, the local police authority was ignorant of the 1973 Protection of Wrecks Act, and no charges were brought against the violators. The reluctance of the Department of Culture, Media and Sport (the current administrator of the 1973 Act) to pursue the prosecution of these individuals has angered those licensees who do follow the rules. The consequence of this inaction has been that the wrong message has been sent to the public concerning the priority of maritime preservation and the perpetuation of the double standard between terrestrial and submerged sites (Darrington 1999: 44). The question must be asked, if the Salcombe Cannon Wreck had been a seventeenth century archaeological site located on public land would it have been treated differently? Most likely the

answer to this question is "yes." In the absence of enforcement, historic shipwreck preservation legislation has little real utility. It has been noted in the United States that even after the implementation of the Abandoned Shipwreck Act in 1988, the rate of predation by treasure salvors did not decrease (Carrell 1996: 75). More needs to be done to create both a system of enforcement and effective stewardship for submerged sites that remain hidden from public scrutiny.

The case of the *SS Taupo* is another example which highlights the problems in legislation, in this instance, one concerning age. In New Zealand the Historic Places Act of 1980 is the most important piece of protective legislation for all of that country's submerged sites (Kenderdine 1991: 2). Under this act a shipwreck becomes an archaeological site only when the time since its wrecking exceeds 100 years. This results in a wreck being unprotected on one day, and then "magically" becoming a protected archaeological site the next. The *SS Taupo*, which initially sank in 1879, was refloated two years later but in a short time sank again. In 1980, soon after the Historic Places Act was implemented, a salvor was charged and convicted of damaging the *SS Taupo* because it was deemed an archaeological site. But the salvor's lawyers were able to win their client's release on appeal when they successfully argued that the defendant interpreted the site to be only 99 years old based on the date of its second sinking in 1881, making it an unprotected wreck site open to salvage and not a protected archaeological one.

There also seems to be some concern about the UNESCO Draft Convention on the Protection of the Underwater Cultural Heritage legislation and certain flaws it may contain. It has been suggested that the convention could potentially conflict with existing laws in Europe, particularly the European Convention on Human Rights, Human Rights Act of 1998 (Fletcher-Tomenius and Williams 1999). The currently enacted Human Rights Act deals with more than just "traditional" human rights issues (i.e., freedom from arbitrary arrest, detention, and torture), it includes additional protections against a state from interfering with an individual's property rights. It is

this aspect that brings it into potential conflict with the UNESCO Draft Convention on the Protection of the Underwater Cultural Heritage. It provides a legal footing for a salvor to claim that a state is infringing upon his or her right of possession of a shipwreck site when the issue of abandonment is uncertain. The claim, by the salvage industry, that archaeologists will use the UNESCO proposal to selfishly exclude other user groups who have an interest in other types of marine resources in or around a deepwater shipwreck site is also unfounded. In the United States, the National Oceanic and Atmospheric Administration (NOAA) is actively involved in international efforts to protect all types of marine resources, including cultural resources, and NOAA is committed to a policy of protection combined with compatible multiple use and enjoyment of those resources by many different sectors (John Broadwater, *Monitor* National Marine Sanctuary, personal communication, 2 April 1999).

These legal problems pose one of the most substantial challenges modern maritime archaeologists have to address. The development of new legislation is slow and changing old legislation near impossible, but it must be done if the submerged archaeological record is to be effectively managed, studied, and protected.

PROBLEMS OF PUBLIC EDUCATION AND COMMUNICATION

Another issue that needs to be addressed is public education and communication. In the public relations arena treasure salvors are clearly more successful. Mel Fisher is quoted as saying:

> "I hope it [the book *The Treasure of the Atocha* by Duncan Mathewson, 1986] inspires adventurous people all over the country who dare to dream the impossible. Let's all work together to ensure that we will always have the opportunity to search for our own treasure - wherever they may be..." (Mathewson 1986: 13)

Words like "adventure," "treasure," and phrases like "dare to dream the impossible" are effective in capturing the public's imagination, attention, and support. But if an archaeologist were to use these same words one's colleagues might consider them to be unsuitable, silly, and possibly unprofessional.

There are many times when maritime archaeologists have been ineffective in explaining to the general public why maritime archaeology and preservation are important, the most well known case being the appearance of George Bass on the NBC *Today Show* (Cockrell 1990). In some cases archaeologists are even viewed as public enemies. In his interview Greg Stemm made the point:

> "...a lot of salvors, and I'm not talking about ProSea people necessarily, but a lot of the salvors out there who make their living trying to find shipwrecks, view the archaeological community as the satans who are trying to put them out of business and take the food off of their table and out of their childrens' mouths." (see Appendix E - Section V: lines 273-276)

The most commonly mentioned failures of maritime archaeology underwater, accounting for more than 50%, have to do with publication, communication, or education, especially as it relates to non-archaeologists (Appendix D, QD6). Of these, most stated that there was a failure to effectively communicate and educate the general public concerning the value of maritime archaeology underwater and that archaeologists do not make history interesting enough. What these results suggest is that researchers may be able to provide chapter and verse concerning the history or construction of the wreck of an eighteenth century Dutch East Indiaman, but that they are less likely to explain how their research will add value to society, or why it is important. This apparent failure to convey the value of archaeological research can result in an erosion of public sympathy for maritime archaeological causes.

This is not to say that all underwater archaeologists fail to communicate effectively. In fact there are several examples of those who do. Bass points to some of his public educational achievements when he states:

> "I don't think it is as bad as one might think. For example, it's true that the treasure hunters get into National Geographic, but my group of underwater archaeologists, starting back at Penn through Texas A&M, have done 10 or 11 National Geographic articles. We've had a NOVA film, and PBS specials, and I just saw a wonderful film on La Salle's ship *La Belle*, which NOVA is buying. So some of these projects do in fact get good publicity, and gradually maybe the public will see how exciting archaeology is." (see Appendix E – Section I: lines 123-129)

Where archaeologists have struggled, treasure hunters have succeeded. As Carrell (1996) has pointed out, archaeologists and salvors are in an evolutionary struggle for survival and it is the salvors who seem to have the upper hand in the public relations game. They are extremely effective in convincing others that their work is bold, adventurous, profitable, and scientific, while at the same time portraying cultural resource managers as boring, bureaucratic, timid, elitist, exclusive, and wasteful of public funds. The new breed of modern day treasure hunters have changed their look from scruffy-bearded old-timers wearing faded cutoffs and baseball caps to young, clean-cut business men with suits and cell phones. The internet has become their international billboard and it is attracting a swarm of new investors. In the 1980s, Seahawk Deep Ocean Technology was able to raise $8,000,000 from investors to recover goods from a Spanish merchant ship lost in the Tortugas in 1622. By portraying private sector historic shipwreck salvage as a better alternative to academic archaeology, and by employing such buzz words as "cutting-edge technology" and "sustainable recovery," they are confusing the general public into thinking that salvage

is a non-destructive humanistic investigation, rather than a profit-motivated venture which destroys much and learns very little (Carrell 1996: 75).

Although there have been cases where archaeologists have published highly interesting and creative articles in popular dive magazines, it remains a medium not commonly utilized by the professional community. On the other hand, salvors and treasure hunters frequently use these forums to promote their causes and disparage archaeologists. A survey of articles from *Diver* magazine which have been posted on their internet site, DIVERNET.COM, found only two articles published by professional archaeologists, both of which were written by Colin Martin of the University of St. Andrews. This is compared to over 40 which discussed general wrecks and wreck diving, 11 which discussed wreck tours, and one detailing the magazine's own listing of the one hundred best wreck dives in the United Kingdom. Of those that covered general topics, several were found to glamorize and promote treasure hunting and the collecting of dive souvenirs. The public communication and education battle cannot be won in the professional journals, but instead the fight must be taken to the more popular media avenues, such as the internet, dive magazines, television, and schools.

PROBLEMS OF PERCEPTION AND "GOLD FEVER"

Finally, the incredible monetary value that can be associated with shipwreck sites has painted a picture of the shipwreck as treasure trove, a picture which seems almost impossible to change given the media hype that surrounds almost every commercial salvage venture. As far back as 1870, when Jules Verne published *Twenty Thousand Leagues Under the Sea*, the world's oceans have been seen as repositories of lost treasure. This image has become almost indelible in the minds of most people.

The way people have traditionally viewed shipwrecks is important to maritime archaeologists because it has directly affected how the field has grown. In 1995 Carl Olof Cederlund wrote:

> "The way in which marine archaeology and other scientific fields within the humanities are perceived is influenced by strong values, deeply embedded at the heart of our culture. These values have influenced marine archaeology and its development causing an imbalance." (Cederlund 1995: 9)

The perception that there are riches just waiting to be gathered creates an enormous incentive to tear through a submerged site in order to get to the treasure. "Gold Fever" is alive and well and it provides a seductive lure for salvage operators to attract prospective investors. Although it has been effectively argued that salvage companies typically represent a very poor investment opportunity (Throckmorton 1990), these messages have remained within the confines of the professional community, unheard by the general public. We live in an age where many dream of either winning the lottery or becoming a contestant on *Who Wants to be a Millionaire*, one of the highest rated television shows currently running. This "strike it rich quick despite the odds" culture only plays into the hands of the treasure salvor. How can archaeology compete against the dazzling image of the treasure wreck if it remains a subject that the public perceives as boring, exclusive, and elitist? What does archaeology have to offer the average person on the street who sees seventeenth century Spanish gold coins for sale in the local treasure shop, a cameo spot on *Time Team*?

There is another popular myth cited by salvors that creates a false perception of diving. Since the development of SCUBA there has been a recurring pattern of diving being portrayed as an activity requiring highly specialized and expert training. Early commercial and military divers, like Dumas and Tailliez, felt this way in the 1950s and it is an attitude that is still perpetuated today. When asked to comment on the future

role of technology in archaeology, particularly with reference to the use of ROVs in deep water archaeology, George Bass said:

> "I'm so opposed to the fact that they are saying, 'this is different, this has to be directed by engineers.' What I'm trying to get across is that this is the same argument I heard when I first got involved in underwater archaeology and everybody was saying, 'oh, you have to do it with professional divers,' and 'it's too complex for you to understand, it's too difficult, too technical.'.... I'm quite frankly offended by the people who say that deep-sea archaeology is different. What they are doing is telling a whole generation of school children that archaeology is finding things and pulling them out of the sea, which has got nothing to do with archaeology. It's the twenty years you spend after that, on research, conservation, and publication." (Appendix E - Section I: lines 175-202)

As Bass points out, the reality is quite different. The majority of diving, between 0 and 100 feet, is not particularly specialized and anybody in reasonable health can do it with just a day or two of training. George Bass proved that even in deep water (more than 100 feet) diving was possible with a minimum of training. His projects in Turkey were typically undertaken with students who had less than a year of diving experience and only basic open-water qualifications. In over 20 years the safety record of the INA sponsored projects has been exemplary. Unfortunately, this myth of diving as a very hazardous activity has spawned a complicated series of health and safety regulations that has the potential of preventing some from pursuing underwater research. Added equipment costs and complexity can become barriers to research in some cases, especially to those archaeologists who are just starting to work in the field.

It is acknowledged that there is an obvious benefit to health and safety regulations, especially in terms of improving underwater communications. Diving

does contain hazards. But are the risks associated with diving more dangerous than driving a car or riding a bike? Is the level of regulation appropriate to the level of risk? This issue of balancing risk and research is one that must be continually monitored by the research community to ensure that the barriers to maritime archaeology are being kept to a minimum while health and safety is kept to a maximum.

COMMERCIAL ARCHAEOLOGY: SEARCHING FOR A MIDDLE GROUND?

Recently, a new dimension has been added to the "Great Debate," one that claims to involve an integrated approach combining archaeological practice with commercial objectives. One of the pioneers of this approach is Greg Stemm, who employs the term "commercial archaeology." (Goodheart 1999: 40). Stemm, a non-archaeologist but someone who could be considered an amateur, has come up with some very intriguing ideas about expanding the horizons of maritime research. These ideas at first glance seem quite reasonable and may change the minds of many archaeologists. But are they just a veiled attempt to make the old tradition of treasure hunting more politically correct in the face of historic preservation legislation? To address this question a closer examination of the commercial archaeological approach is warranted.

Commercial archaeology is based on the premise that most historic shipwrecks are undergoing a constant and aggressive process of degradation from a combination of natural processes and human activity, which includes dredging, fishing, deep-ocean oil exploration, and "piracy" (Stemm 1998). Because maritime archaeologists seem to be either unable or unwilling to deal with this drastic situation the private sector is needed to fill the breach. The best, and probably only way to effectively encourage private sector involvement is through a profit incentive, which can only be generated by selling all or some of the artifacts, or as Stemm puts it "intrinsically valuable trade goods," which are recovered (Goodheart 1999: 40). Without the sale of artifacts,

commercial archaeology is impossible. To determine which artifacts are sold, Stemm has proposed a system of differentiating between "trade goods" which can be sold, and "cultural artifacts" which cannot (Stemm 1999: 3). An object falls into one of these two categories depending on three factors, which include:

1. Is the item unique or are there a number of duplicates that have been recovered?
2. Is the item easily recorded or replicated?
3. Can the archaeological value be weighted against its potential sale value?

The most compelling argument for commercial archaeology is that it is a better alternative than doing nothing at all and letting a potentially significant site be destroyed and lost forever.

Commercial archaeology has given added credibility to the salvor's claim of fair access to historic shipwreck sites. To paint themselves as more legitimate and historically conscious, commercial salvors have formed the Professional Shipwreck Explorers Association (ProSEA). A merger of the Deep Shipwreck Explorers Association and the Historic Shipwreck Salvors Association, ProSEA has even adopted a code of ethics for itself covering such topics as archaeological practice, business conduct, and guidelines for the sale of artifacts. Article 8 of this code reads:

> "Members agree to hold out for sale only those artifacts that have been subjected to thorough study and investigation by the Project Archaeologist. Those items that are deemed to be of irreplaceable archaeological value, and which cannot be documented, photographed, molded or replicated in a manner that allows reasonable future study and analysis, should be kept together in a collection which is available for study by legitimate researchers." (Stemm 1999: 2)

Any attempt to develop a middle ground approach to the fair treatment of maritime heritage should be applauded if it is an honest and genuine attempt at building a bridge between commercial salvors and archaeologists. Greg Stemm is a private sector commercial salvor whose motivations and intentions are honest enough. But unfortunately, there are some serious flaws concerning some of the central ideas of the commercial archaeological approach. Most of these reflect a general misunderstanding by the salvage industry concerning the principles of modern archaeology, how and why the research process is conducted, and the nature of the maritime archaeological record.

Most salvors seem to equate archaeology with the outdated methods and objectives of antiquarianism. This is a common mistake, where the uniformed think archaeology is simply about recovering interesting and old objects. As previously shown, modern archaeology has developed far beyond the point of antiquarianism. Objects do not have to be interesting or old to be of archaeological value today. On the contrary, the most mundane artifact can hold immense informational potential, it just requires scholarly and scientific investigation to unlock that potential.

The second mistake is the sense of emergency that is used to justify the commercial option. The various forces of site degradation, which Stemm cites, are completely legitimate but every archaeological site is different and each must be evaluated separately. To characterize the entire submerged archaeological record as being under immediate threat is misleading and inaccurate. Was the Tortugas site under significant threat of loss and what is the motivation for its excavation? Stemm doesn't say, but his blanket rejection that shipwreck sites can be relatively stable in a submerged environment has been proven wrong in a number of cases. The ancient wrecks excavated by Bass at Kos and Katsev at Kyrenia, the *Vasa*, and the *Mary Rose* (1545) are examples which proved that wooden wrecks can survive hundreds, if not thousands of years with incredible preservation, particularly of organic remains.

Certainly degradation is a problem, especially for modern-era wrecks with metal hulls, but degradation and site formation is what archaeologists are trained to study and deal with. It has been acknowledged for decades that sites are lost every day, but the danger of degradation is no justification for selling artifacts. It is contradictory to say that the only way to save an archaeological site is by selling away the very artifacts one is suppose to be saving. The end does not justify the means no matter how genuine and honest the intent, and the commercial solution seems to be as damaging as the problem of degradation.

In defense of this approach Stemm tries to compare commercial archaeology underwater with contract archaeology on land. But this is a false comparison. It is true that there are numerous private sector archaeological contractors who do get paid to professionally record and excavate sites, having every expectation of earning a profit for their company while doing so. But the difference lays in the fact that archaeological contractors earn their profit by doing the archaeology itself, not by selling the artifacts they recover. The growth of private CRM industry is based on the passage of historic preservation legislation that requires government agencies and others to consider archaeology whenever they initiate an undertaking. Without these laws there would be no private archaeological contractors.

To most people, Article 8 of the ProSEA code of ethics sounds very reasonable, and it is clear that this statement is meant to address the concerns of archaeologists. But this statement does pose some serious questions that are not specifically addressed. It does not define "irreplaceable archaeological value," it does not identify who will be ultimately responsible for making that assessment, and it does not identify the minimum qualifications that are required to be a "Project Archaeologist." And how can Article 8 be reconciled with Stemm's third factor in differentiating between trade goods and cultural artifacts? If an item's sale value, or as Stemm prefers "value of return to stream of commerce," is high enough, will an item

be sold regardless of other factors? Again, who makes this judgment, the salvor or the archaeologists?

There are also many other areas of concern where the commercial approach becomes vague and unclear. Issues such as artifact conservation, long-term curation, and the publication of results are not explicitly addressed. One major element of a shipwreck site that commercial salvors routinely neglect is the hull remains. Waterlogged wood does not sell as easily as gold coins or amphorae and the cost of conserving even a portion of a wooden hull is enormous. Are hull remains to be left on the seabed to suffer the very threats that were cited as the reason for conducting recovery operations in the first place? When asked about the cost of conserving the materials recovered from the Tortugas wreck, Greg Stemm claims it was not a significant proportion of the budget. He stated:

> "Conservation costs after the recovery were overall...I think we spent in the neighborhood of 3 to 4 million dollars on the overall project. Now I'd be surprised if we spent more than 2 to 3 hundred thousand dollars totally on conservation. Despite the fact that it is made out to be a big deal, it is just not that expensive." (Appendix E - Section V: lines 351-354)

This is quite surprising, given the fact that conservation and report preparation are typically more costly than the actual excavation. In his interview Richard Steffy indicated that the treatment of hull remains in itself is quite costly by stating:

> "You know the well preserved ships, it costs a bundle to conserve them and put them in museums, so a lot of them have to be left on the seabed. Even to properly open up and record a hull is very expensive." (Appendix E - Section IV: lines 154-156)

One could imply then that not enough funding is being dedicated to the proper treatment of finds after they were excavated. Only when the final report is published will this issue be made clear.

Although the preceding discussion has identified several shortcomings with the commercial approach to maritime archaeology, archaeologists should nevertheless always keep an open mind. With time, the commercial approach may eventually become a viable option if some of its fatal flaws can be resolved. The real test of Stemm's approach will occur when Jenette Flow, the Tortugas Shipwreck Project's chief archaeologist, publishes the results of the investigation. At that time, she will be given a fair chance to prove that the work conducted was of a high professional standard. If she succeeds, it may open the way for more professionals to work with salvors without fearing professional exile.

One underdeveloped source of funding for archaeology is corporate sponsorship. If archaeologists could improve their public relations awareness there may be an opportunity to capitalize on a projects heightened publicity. One example of a project effectively selling itself is the recovery and conservation of the *Belle*, a French vessel sunk in Matagorda Bay in 1686 (Hamilton 1999). The reassembly and conservation of the wreck by the Conservation Research Laboratory (CRL) of the Nautical Archaeology Program at Texas A&M University could prove to be a workable system for increasing support. This professionally and academically run project was able to gain widespread media attention on both a local and national level and, as a result, it has been successful in obtaining substantial corporate support in the form of both funding and donated materials. This project did not need to sell artifacts to achieve its goals, it just needed to sell itself.

THE QUESTION OF AGE: HOW OLD IS OLD AND IS IT SIGNIFICANT?

An issue that is commonly raised by salvors and heritage managers is one concerning the age of a shipwreck and how old must a vessel be before it is considered

to be significant. Many salvors have criticized the view that 100 years is too young for any vessel to be historically, culturally, or archaeologically important. But as the twentieth century has come to a close and the recent past becomes part of history, there is a growing interest by archaeologists in the relics of this last century, especially in the various engines of war that were used during this dynamic period. Because there is some confusion surrounding this issue, an attempt at clarification is warranted.

Age and archaeological significance are two characteristics of a shipwreck site that are commonly thought to have a direct relationship (i.e., older vessels are more significant than younger vessels). Although this is a view commonly held by the general public, salvors, and even by some first year students of archaeology, it is a misconception. Age does not equate to significance. In the United States, Section 106 of the *National Historic Preservation Act* of 1966 (revised 2000) uses four primary criteria for evaluating a site's historical, cultural, or archaeological significance. These include:

1. Potential of the site to contain information which is important in history or prehistory [archaeological/historical]
2. An association with a significant historical event(s) [historical/cultural]
3. An association with a significant historical person(s) [historical/cultural]
4. Embodies a distinctive characteristic of a type, period, or method of construction, or represents the work of a master, or possess high artistic quality (National Park Service 1998)

Age is not a factor. In addition to meeting one of these four criteria, a site must have integrity of location, design, setting, materials, workmanship, feeling, and association. If a wreck has been scattered so far and wide that it no longer holds any integrity of location then the significance of such a site is severely reduced, although Colin Martin's excavation of the *Adelaar* (1992) has shown that even in shallow, high

energy marine environments a shipwreck site can still contain a high informational potential.

This is not to say that age is unimportant. Knowing a site's age is essential to understanding its context. But it is the *context* of a site that makes it significant, not its age. Age only acts as a filtering mechanism. As one moves back in time the archaeological record becomes increasingly scarce; therefore, older wrecks tend to be more rare than younger wrecks. Again, it is context and the relative rarity of a site-type that influences significance. A very recent ship-type, if it is the only one of its kind, may be important. When the archaeological record is largely untapped and the known database is small, as was the case with the field of maritime archaeology in the 1960s and 1970s, then almost every newly discovered site will be considered significant. But as the database of knowledge grows the importance of newly discovered sites changes, and their significance must be assessed against what has been found before. The discovery of the hundredth specimen of a Viking warship does not provide the same potential for new information as the discovery of the first, and when deciding whether or not to investigate, a judgment must be made concerning what extra information will be gained. It may be the case that funding would be more effectively spent elsewhere, such as studying an unknown type of Viking fishing boat.

The point must be stressed that more recent archaeological sites may have much to offer. In England, this interest is represented by the youngest vessel to be designated for protection, the *A-1* submarine, which is less than 100 years old. In the United States one of the first submerged maritime monuments to be commemorated and protected was the wreck of the *USS Arizona,* a battleship sunk during the Japanese attack on Pearl Harbor on December 7, 1941. This war memorial was dedicated in 1962, only 20 years after it was lost because of its association with a significant historical event.

Why should the treatment of modern-age underwater sites be any different than that of modern-age terrestrial sites? In the United States historical archaeologists on land regularly protect, manage, and study numerous sites that date as recently at the 1950s and 1960s. So why is the salvage of World War II British warships allowed to continue? An answer may lie in the fact that this preservation policy is one established by the Ministry of Defense and not by any heritage organization.

Shipwrecks are not the only submerged remains that hold a high commercial value for salvors. Naval aircraft, especially those dating to World War II, are now highly sought after by museums, collectors, and salvors (Neyland and Grant 1999). The market value for these items is quite substantial. Two Wildcat-type Warbirds that were salvaged from Lake Michigan are reported to have been sold for $250,000 each, and the rare Douglas TBD Devastator located off the coast of Florida is estimated to be worth in excess of one million dollars (Neyland and Grant 1999: 50). In order to preserve these types of sites the Naval Historical Center has draft policies to formally help the Navy maintain its ownership. There is much debate concerning the precedent of protecting and preserving such a "new" resource. The salvage industry has been actively lobbying the government to pass legislation formally abandoning all Navy aircraft lost prior to 19 November 1961. If this is done, the issue of abandonment will swing in favor of the salvors and archaeologists will be helpless to stop them. Because the maritime archaeological community seems slow to pick up the banner of saving aircraft lost at sea they are in danger of conceding this battle before it has even begun. The only legislation that does help to protect these types of sites is the Military Remains Act (1986) that has been applied to all British military aircraft crashed at sea or on land.

SUMMARY

The long and established history of marine salvage is one more reason for the retarded development of maritime archaeology underwater as a professional field of

study. Terrestrial archaeology itself was a late developer, but maritime archaeology has been exceptionally delayed in its maturation. Maritime archaeology underwater has had to overcome 1) the popular belief that a shipwreck's only worth was in the value of its salvaged cargo; 2) the legal and commercial institutions which regulate and perpetuate the salvage industry; and 3) the early perception by pre-modern maritime archaeologists that underwater excavation was best left to "diving professionals" or salvage divers.

Today, many people view historic shipwrecks as caches of sunken treasure to be retrieved, and not as important cultural resources to be studied. Some governments exploit shipwrecks as a short-term economic resource, overlooking their long-term potential. This problem developed in part from the glorified media attention and hype that has surrounded salvage operations for the last hundred years. Newspapers, magazines, radio, and television have consistently reported stories of gold, glory, and high adventure with little attention given to the historical context or value of a wreck site.

Even Jacques-Yves Cousteau popularly portrayed diving as an otherworldly experience in a sea filled with lost riches from the past. As recently as 1981 the popular magazine *Science* published an article condoning the principles of treasure hunting among Florida's wrecks (Watson 1983: 26). Only more recent publications have started to address the issue of the public's perception of archaeology versus salvage (Cockrell 1990; Throckmorton 1990).

Another hurdle for archaeology to overcome has been the legal sanctioning of salvage and the development of marine insurance. Both have maintained and encouraged the practice of marine salvage, making any modification to the current system extremely difficult. The authorization of marine salvage has resulted in a legal double standard, as seen in the case of the Merchant Shipping Act versus the Protection of Wrecks Act.

The practice of salvage diving also created a barrier between archaeologists and the underwater archaeological record they were studying. The perceived complexity and expertise of "certified diving" dissuaded many archaeologists from breaking the surface of the water. The cost and physical requirements of using the traditional "hard-hat" gear, the amount of training and experience necessary to work in it effectively, the substantial surface support equipment, and the overall encumbrance to the diver on the seabed created a strong disincentive for archaeologists to put on the old gear themselves (Muckelroy 1978: 9). Even though this constraint was removed in 1942 with the introduction of the aqualung, it was another 18 years before a classical archaeologist, George Bass, learned how to dive and led the way for the rest of archaeology to follow.

These elements associated with salvage are just some of the reasons why maritime archaeology underwater has "lagged" behind terrestrial archaeology in its methodological and theoretical development. It should not be overlooked that the practice of marine salvage of historic shipwrecks is very destructive to the archaeological record. In a few rare cases individuals have succeeded in preserving the information potential of the sites they have salvaged, but this has been the exception rather than the rule.

CHAPTER 6: PROFESSIONALISM, ETHICS, AND TEACHING MARITIME ARCHAEOLOGY

"Archaeology is a profession, and the privilege of professional practice requires professional morality and professional responsibility, as well as professional competence, on the part of each practitioner." (Code of Conduct for Registered Professional Archaeologists, 1999)

Chapters 4 and 5 dealt with several external issues confronting maritime archaeology from the outside, but there are also several internal issues that are equally relevant. One of these, theory, was discussed in Chapter 3. Professionalism, ethics, and the academic teaching of maritime archaeology are three additional areas that warrant examination because of their overall importance in how the field is changing from within. The following sections of this chapter will explore these issues and how they are helping to shape the future of maritime archaeology underwater.

PROFESSIONALISM

The roots of professional accreditation in archaeology began with the foundation of research societies, such as the Society for Nautical Research and the Society for Historical Archaeology. By joining, association members informally agreed to abide by an unwritten code of professional conduct. Peer review, particularly of research published in books and journals, seemed to be the predominant system of maintaining and regulating standards of practice during the 1960s and 1970s.

Without question, archaeology is a destructive process of investigation. Although most archaeologists subscribe to the definitions and goals of archaeology as a whole, there is a great degree of diversity when it comes to the actual application of methods and theory to meet these goals (Sharer and Ashmore 1987: 25). In some cases, this diversity resulted in the destruction of the archaeological record instead of

its preservation. When this occurs knowledge is lost, not gained. With the advent of contract archaeology in the 1970s and 1980s the problems of unregulated research standards became a critical issue. In response to this problem, organizations such as the Society of Professional Archaeologists (SOPA) in the United States and the Institute of Field Archaeologists (IFA) in the United Kingdom were founded to define professional qualifications and standards comparable to those set for doctors, lawyers, and accountants. Recently professionalism in archaeology has taken another step forward in the United States with the creation of the Register of Professional Archaeologists (RPA). Jointly sponsored by the Society for Historical Archaeology and the Society for American Archaeology (SAA), the RPA is an outgrowth of SOPA, coming into being late in 1997.

The development of the RPA is one example of how professionalism in archaeology can currently be defined. To be registered as a professional archaeologist, thus gaining the credentials RPA after one's name, a candidate must demonstrate that she/he:

- Holds an advanced degree with a specialization in archaeology
- Has designed and executed an archaeological study that has been reported in the form of a Master's thesis or Doctoral dissertation,
- Has a minimum of one-year (52 weeks) of field, laboratory, and supervisory experience, and
- Accepts the Code of Conduct, Standards of Research Performance, and Grievance Procedures of the RPA (RPA Application For Registration, 1998).

An advanced degree, M.A., M.S., Ph.D., or D.Sc., must come from an accredited institution in the fields of archaeology, anthropology, art history, classics, history, or some other related field, but the emphasis must be archaeology. The execution of an archaeological study must show substantive data analysis addressing explicit research

questions. An entirely descriptive report, no matter how lengthy, is not acceptable. These standards clearly reflect the trend to end inferior practices and define what a "professional" archaeologist is. This trend is also being carried over to underwater research. In 1999 the Institute of Field Archaeologists produced a technical paper with the help of the ADU that outlines a variety of methods for the appropriate treatment of marine archaeological sites (Oxley and O'Regan 1999).

A genuine philosophy of professionalism does have the benefit of maintaining consistent standards. Over time this process of accreditation and peer review has the result of weeding out and excluding those who do not rise to meet the minimum level of accepted practice. This is a process lacking in amateurism. But modern professionalism is not without its drawbacks. As was discussed in Chapter 4, the informal structure of the early development of maritime archaeology underwater attracted a host of amateur archaeologists, sport divers, and maritime enthusiasts who contributed a great deal to the study of the maritime past. But as the previously cited statement by Colin Martin suggests, professionalism tends to close the door to such unconventional individuals. While keeping out the untrained, it also keeps out those who might have otherwise made a substantial contribution, in the way Richard Steffy and Colin Martin did in the 1960s and 1970s. Although these groups still contribute to the field of maritime archaeology underwater, the opportunities for them in academia are not as open as they once were.

PROFESSIONAL ETHICS

Professional ethics in underwater archaeology have been described as:

> "The ethical values and practices that form part of the professional standards of underwater archaeological practice. Underwater archaeologists, though they work on submerged sites and with

> techniques and technology that are often quite different from those of their terrestrial colleagues, share the ethical stance of land archaeology, a stance developed during more than a century of fieldwork on land." (Elia 1997: 327)

Given that maritime archaeologists who work underwater should adopt the same ethical standards as their terrestrial colleagues, what are some of the current ethical mandates? In Australia, the Australian Association of Consulting Archaeologists Inc. (AACAI) has adopted a Code of Ethics that addresses the professional responsibility of the researcher to several different segments of society. Article 2 of the AACAI constitution deals with the duty of its members to the public, which include:

1. A member should take a responsible attitude to the archaeological resource base and to the best of her/his understanding ensure that this, as well as information derived from it, are used wisely and in the best interest of the public.
2. A member shall not recommend or take part in any research that she/he is not qualified.
3. A member shall not recommend or take part in any research that she/he has good reason to believe may be sub-standard.
4. A member shall ensure that all relevant data pertaining to the resource base should be deposited with an appropriate government authority or archive.

In the United Kingdom, the mission statement of the IFA encourages its members to:

1. influence and inform actively through consultation with the legislature, public bodies, and others on matters relating to archaeology,

2. promote an active professional organization, involving and offering appropriate services to its membership,
3. develop proper professional guidelines and standards for the execution of archaeological work, and to establish these guidelines and standards by promoting membership of the Institute to all those practicing field archaeology,
4. promote the training of archaeologists in cooperation with other bodies and to encourage and monitor the provision of archaeological courses in education, and
5. facilitate the exchange of information and ideas about archaeological practice and to communicate these to the profession and more widely (IFA webpage, 2000; http://www.archaeologists.net/).

And finally, in the United States the RPA Code of Conduct also recognizes an archaeologist's responsibility to the public and explicitly forbids its members from:

1. engaging in any illegal or unethical conduct involving archaeological matters or knowingly permit the use of their name in support of any illegal or unethical activity involving archaeological matters,
2. giving a professional opinion, make a public report, or give a legal testimony involving archaeological matters without being as thoroughly informed as might reasonably be expected,
3. engaging in conduct involving dishonesty, fraud, deceit or misrepresentation about archaeological matters, and
4. undertaking research that affects the archaeological record for which they are not qualified (Code of Conduct for Registered Professional Archaeologists, 1999).

In 1996 the Society for American Archaeology adopted eight Principles of Archaeological Ethics. These include:

1. Stewardship
2. Accountability
3. Commercialization
4. Public Education and Outreach
5. Intellectual Property
6. Public Reporting and Publication
7. Records and Preservation
8. Training and Resources

Concerning the issue of commercialization the Society for American Archaeology has stated:

> "The commercialization of archaeological objects – their use as commodities to be exploited for personal enjoyment or profit – results in the destruction of archaeological sites and of contextual information that is essential to understanding the archaeological record....Whenever possible they [archaeologists] should discourage, and should themselves avoid, activities that enhance the commercial value of archaeological objects, especially objects that are not curated in public institutions, or readily available for scientific study, public interpretation, and display."
> (Statement released by the Society for American Archaeology Executive Board, April 10,1996)

Ethics has become a very contentious issue for maritime archaeologists because of the particular nature of shipwreck sites and the high potential of such sites to contain commercially valuable items. One of the main challenges of ethics is when archaeological values conflict with the values of other groups in society. As previously seen, sport divers, treasure hunters, and deep sea salvors feel they have as much right to access wreck sites located on the seabed as archaeologists do. But internally there seems to be a great deal of uncertainty about two core issues facing the maritime archaeologist of today: 1) whether or not a professional should work,

cooperate, or consult with a commercial salvage operator; and 2) should the selling of artifacts be allowed.

Should Archaeologists Work With Salvors?

The question of whether or not archaeologists should work with salvors in the recovery of items from shipwreck sites is an interesting one. Some archaeologists feel that even asking the question is inappropriate. But there are definitely several facets of this issue that deserve further discussion. When asked if archaeologists and salvors should work together 40% of respondents felt they could, but only under special circumstances, while 34% felt they did work together in many cases and should do so more often (Appendix D, QD7). Only 25% stated that archaeologists and salvors could never work together because of conflicting principles. These results seem to indicate the existence of a substantial middle-ground position concerning this issue. But these results do not correspond to those opinions most commonly voiced in the published literature. Publicly almost every archaeological association in the United States has published ethical guidelines condemning professional archaeological involvement with treasure hunting operations (Johnston 1993: 53). Commenting on the drawbacks of the commercial approach to archaeology, Greg Stemm stated:

> "The biggest disadvantage to my approach is this: The two worlds are polarized right now, at least publicly. Most of the archaeologists who would privately sit down and tell me that we need to work together will publicly say, 'No commercial access!'" (Appendix E - Section V: lines 269-272)

So why is there this discrepancy between what is said publicly and what is felt privately? The fear of professional expulsion is clearly the reason. In fact, even the impression of cooperation with a commercial operation can have serious repercussions. One example of this was a recent *New York Times* article covering the

discovery of the Melkarth wreck by Greg Stemm (Broad 1998). This ancient wreck site was accidentally discovered at a depth of nearly 3,000 feet using an ROV while searching the Mediterranean for another wreck, a British warship they have code named the *Cambridge*. The *Cambridge* is a vessel that sank more than 300 years ago transporting a large cargo of coins, valued today at up to $500 million (Broad 1998; Goodheart 1999). This expedition, which was conducted during the summer of 1998, was a cooperative venture between Odyssey and the Royal Naval Museum in Portsmouth, England, a public institution partly financed by the Royal Navy. The Melkarth wreck, named after the Phoenician god of sailors and potentially dating to the fifth century B.C., appears to have been an ancient merchant vessel carrying Punic amphorae, of which 200 are still visible on the surface of the site.

In the *Times* article, Cheryl Ward, an Assistant Professor of Nautical Archaeology at Texas A&M University was quoted as saying, "It's [the project] got tremendous potential as a way to bring archaeology into the business world." The article also quotes William Murray, chairman of the Underwater Archaeology Committee of the Archaeological Institute of America (AIA), as saying;

> "If academic archaeologists are going to deal with deep-water shipwrecks, it's going to have to be through cooperative efforts like this," (Broad 1998)

This article was eventually posted on the internet via the Sub-Arch discussion list, which generated a large number of comments concerning the ethics of professional archaeologists working with commercial salvors. Soon after its posting on the internet, both Cheryl Ward and William Murray posted their own statements claiming they were quoted out of context and that the wrong impression was given concerning the relationship between Texas A&M, AIA, and Odyssey. Apparently, even the impression of cooperation can stir criticism within the professional community and can be damaging to one's professional reputation.

What about those cases where an archaeologist has actively participated in a treasure salvage operation? Duncan Mathewson III, who worked with Mel Fisher on the recovery of objects from the wreck of the *Atocha*, and who wrote *The Treasure of the Atocha* (Mathewson 1986), is one example of how this type of working relationship typically ends in failure and one's professional reputation is tainted thereafter. Because of his association with the project, Mathewson was "black listed" from the professional community and stopped from presenting papers on his work at professional conferences. He states:

> "As a result, for most of the time I've been associated with Treasure Salvors, I've been blackballed in the archaeological community. On several occasions, I was prevented from giving papers at archaeological conferences and have been discouraged from submitting reports on the *Atocha* site to professional journals." (Mathewson 1986: 116)

The exclusion of those who worked with treasure hunters began in the United States in the mid-1980s. The last year that an article was published by a known treasure hunter was 1985 when Robert Marx was allowed to present a paper at the sixteenth annual Conference on Underwater Archaeology that was held that year in Boston (Marx 1985). It is interesting to note that in the forward to the published proceedings the editor, Paul Johnston who was then at the Peabody Museum, wrote:

> "Reflecting the ever-increasing public interest in underwater affairs, papers were presented not only by professional archaeologists but also by attorneys, physicians, treasure salvors, sport divers, historians and museum curators." (Johnston, 1985)

Over the next few years, however, the situation changed dramatically as individuals such as Robert Marx were excluded from presenting and publishing papers at conferences. In March of 1990 Mary Beaudry published a special report on ethics and looting in the SHA newsletter (Carrell 1990: 1). In this report Beaudry encourages a hard-line stance against treasure hunting, a position that was fully adopted by the SHA. She wrote:

> "... 'situational ethics' are the last thing we need. As archaeologists we can ill afford to take the easy way out by tailoring our standards to fit the current political climate or misinformed popular opinion. ...we must all be very clear on the distinction between minimal standards required by law and the highest ethical standards to which as professional archaeologists we should all subscribe and adhere. If we strive to change laws so that they truly protect resources and if we avoid sending confused and contradictory messages to the public ... we will be able to give looting its rightful name and never be asked to call it--or misconstrue it--as archaeology." (Carrell 1990: 1)

Two arguments against archaeologists and salvors working together have been identified (Appendix D: QD5). The first follows the arguments outlined by Beaudry, which states that working together sends a mixed signal to the public, and drastically undermines the professional credibility of maritime archaeologists in the eyes of their terrestrial colleagues. The second points out that the principles of archaeology are fundamentally inconsistent with the aims of commercialism, whose primary aim is to earn a profit. In a commercial project, money becomes a major factor in deciding how a site is excavated, not the archaeology itself. Corners may be cut to save money and increase profit margins.

The first argument cannot be questioned; working on projects that sell artifacts or gives them to investors does severely damage credibility. If the standards and

principles of doing an underwater excavation are different than those that are employed on land, then it is not pure archaeology. But the second argument, that doing archaeology for profit is inherently bad, is not entirely true. The development of contract archaeology and CRM has proven that private sector companies can do good archaeology and earn a profit at the same time. But good contract archaeology requires a well thought-out research plan before work is undertaken. Research proposals need to identify the required resources and estimate a sufficient level of funding that will allow the project to achieve its stated research objectives. If this is done it is not impossible for a private contract firm to do archaeology of the highest standard while at the same time earn a fair profit. The main difference between contract archaeology and commercial archaeology is how the profit is earned, not the profit itself.

Those who feel that archaeologists should work with salvors make a strong case with the argument that without cooperation heritage will suffer. If a treasure wreck is found it will eventually be salvaged; therefore, it is logically better to work together so that at least some information is saved instead of all of it being lost. This is a compelling argument and one that is hard to deny at first glance. It seems that it is always better to do some archaeology than nothing at all, this is the basic premise behind rescue archaeology on land. So who is right? Well if one examines the results of those commercial ventures that have included archaeology, the answer becomes quite clear. Today there has been little or no published research from commercial projects that meets even the lowest standard of scholarly research. When survey respondents were asked to provide a complete reference for any published historical/archaeological research report that was conducted or funded by a professional salvage company, only 18% (17) were able to provide one. Of these, the most common example was Mathewson's *Treasure of the Atocha* (1986). But as has been explained by Jeremy Green (1987), this publication falls well short of what is required in a research report and it also shows the real difficulty of salvors and archaeologists effectively working together. Since this was the "best" on offer, one

can only conclude that the overall state of these types of publications is quite poor. If respondents were asked to provide a reference of a professional project the response would be overwhelming. The fact remains that, so far, the private funded, commercial salvage industry has completely failed to produce a significant body of published research which even comes close to the level of academic research. As long as this situation exists, the cost of losing one's professional credibility becomes too overwhelming of an argument for not working with the commercial sector. It will never be worth the risk if no archaeological value will be gained.

Finally, the motivation behind treasure hunters who want to include archaeologists must be questioned. Is the incentive to involve them based on a desire to preserve the maritime past or is it merely used as a shield to fend off criticism? The phrase "voluntary compliance" is an oxymoron, and any commercial operator who claims to be doing the "right thing" for altruistic reasons is contradicting himself. The most ethical and appropriate action would be to leave a historic shipwreck undisturbed, at least until a time when the proper resources become available to excavate, study, publish, and curate the recovered remains properly. It may also be the case that there is a selfish reason for having an archaeologist on staff. By doing some historical research and recording, a treasure salvor can lure in more investors and sell artifacts at a higher price. The motivation then becomes better profits, not better archaeology.

The Selling of Artifacts

The sale of artifacts recovered from shipwreck sites is an issue that has become an immovable wedge between professional archaeologists and commercial salvors. But the debate is not as polarized as one would suspect reading the published record and there is evidence of a substantial proportion of professional archaeologists who feel the sale of antiquities is acceptable in some cases. Of 87 respondents questioned whether they felt the sale of antiquities was acceptable, 1% were not sure, 2% stated it

was always acceptable, 29% stated it was never acceptable, and 68% stated it was acceptable in some cases (Appendix D, QD4). There are numerous arguments for and against the sale of artifacts, but who is right? To try and answer this difficult question a closer examination of each position is needed.

Those who oppose the selling of artifacts under any circumstances cite the following reasons why:

1. The sale of antiquities goes against the ethical standards and principles of archaeology. The archaeological record is a finite resource which is non-renewable and therefore must be protected, preserved, and studied. The sale of items only justifies treasure hunting.
2. Cultural materials (artifacts) belong to society as a whole, therefore no single individual or entity should profit from their sale. This is an issue of both natural and cultural patrimony. Cultural materials represent an important part of a commonly shared cultural heritage.
3. If a collection of artifacts from a shared context is broken up it loses its integrity and heritage suffers as a result.
4. Putting a price tag on an artifact degrades its cultural and intellectual value. When an artifact loses its cultural context it loses its archaeological importance.
5. Treasure hunting is a major threat to the underwater maritime resource. The sale of antiquities from shipwreck sites undermines the professional credibility of maritime archaeology in the eyes of both the archaeological community and the general public.

Those who support the sale of artifacts provide the following arguments in support of their case:

1. Because you cannot stop the sale of antiquities one must try to work within this reality.
2. The sale of antiquities can help to fund further research.
3. The sale of multiple copies of an artifact (such as coins or amphorae), or items with no special artistic or research value (such as shattered pieces of wood/ballast/glass slag), is acceptable and in some cases preferable to artifacts which are locked away in warehouses and forgotten.
4. Because there are not enough repositories in the world to house all the items being recovered, the only option is to sell items. All items are not significant and if you tried to save everything the entire system would collapse.
5. The sale of antiquities is acceptable if the items in question are under threat of being damaged and the only way to save them is through their recovery and sale.
6. If an item or artifact has been fully recorded then it is acceptable to sell it.
7. If all the ethical and legal requirements concerning the antiquities have been met, then their sale is acceptable.

Given the strengths of the arguments on both sides of this issue it seems difficult to decide who is right. But again, if one looks at how the sale of artifacts negatively affects the field's professional credibility versus its potential benefits, the answer becomes apparent. The commercial archaeological approach, such as the Tortugas project, has not yet been proven an archaeological success because the results have not yet been published. This lack of assessable data gives the professional archaeological community no other choice but to reject the arguments that support the sale of artifacts. It doesn't matter how much future work would be funded, or how practical you are, or that only a small amount of information would be lost, the loss of professional credibility, in the eyes of both the professional mainstream and the public, is too high a price to pay for these minimal gains.

There are times when maritime archaeologists have difficulty clearly communicating to the public the importance of their research (see Cockrell 1990), and it can be a struggle to change the public's image of a shipwreck as a treasure trove. However, it would be much more difficult to convince the public that maritime archaeology underwater was anything more than a treasure hunt if archaeologists worked with salvors, and the submerged archaeological record would suffer for it. Archaeologists must set an example that the general public will follow and follow willingly. Without professional credibility sources of funding for underwater research would be even harder to acquire.

Ethical Dilemma in Britain

Compared to the United States and Australia, the maritime archaeological establishment in the United Kingdom, especially in England, still seems to have very close ties with the private salvage sector. Does this indicate that there is a different set of ethical standards for Britain? There shouldn't be, but perhaps there is. In the late 1980s it was said;

> "In Florida we have treasure hunters doing 'archaeology,' in the United Kingdom we have archaeologists doing treasure hunting; what else is it when the legislation insists that the sites are excavated archaeologically, but the material has to be sold at auction?" (Green 1987: 74)

Today, 13 years later, it is still the case. As previously stated, the MSA remains a major legal component in supporting the exploitation of historic shipwrecks. But the problem does not stop there. At the annual International Shipwreck Conference (ISC) held every year in Plymouth the list of presenters commonly includes non-professional archaeologists who salvage historic wreck sites and sell the artifacts. What is even more alarming is that this conference is sponsored by the NAS!

At the eighteenth meeting of the ISC held in February at the University of Plymouth, the presenters included Stephen Trow of English Heritage, Moya Crawford of Deep Water Recovery and Exploration Ltd., and Pat Clyne of Salvors Inc. Organized by the South-West Section of the Nautical Archaeology Society, the stated aim of the conference is "to bring together divers, salvagers, treasure hunters and marine archaeologists for open and friendly discussion." (Peter Holt 2000; ISC web page http://www.threeh.demon.co.uk). While many maritime archaeologists may feel the idea of the ISC is good one, those who attend are guilty of betraying the very sites they are professionally bound to protect. Those who attend are not only being hypocritical, they are being unprofessional as well given the ethical standards outlined above. This may sound like harsh criticism towards British maritime archaeologists but it is time that they recognize the ethical quagmire they are sinking in. What is needed is a firm stand against those who threaten the public maritime heritage, similar to the one adopted in the United States and Australia. But those at the front of CRM in Britain are worried that such an approach may cause more harm than good. Martin Dean, director of the ADU has stated:

> "The time isn't right to push for blanket legislation. It may come eventually, but certainly not in the foreseeable future. Not in the next few decades. So those of us who are pushing for change are not pushing too hard because we feel it would be counter productive. If you push too hard you could actually develop a bow wave which could then swamp you, and we don't want that." (Appendix E - Section II: lines 357-362)

Martin Dean may be right, but it is still a hard pill to swallow. Waiting decades for public opinion to change seems a poor alternative to active campaigning. If archaeologists were better communicators then change might be achieved much sooner without the fear of a public backlash.

Too many people appear to be swayed by the smooth talk of the commercial salvage industry, the most susceptible of which are recent graduates of maritime study programs. There seems to be a brewing crisis in academia. When a student graduates and is unable to find a conventional job, either in a research institute, professional contract company, museum, or teaching position, the option of working with a commercial salvor and earning good money becomes a very attractive offer. If the field is to keep students from turning to a life of commercial archaeology, there must be a drastic improvement of the current educational system and a better career development structure.

Every time an archaeological or historical site is annihilated we lose a piece of our shared cultural heritage that simply can never be replaced. The significance of this loss depends on the significance of that which was destroyed. If the item is common by nature and identical to others that have been previously recorded or preserved, then the injury is not so severe, and in certain cases may represent the lesser of two evils. But if an artifact or site is unique, or associated with an important historic event or individual, then that loss is greater. In either case, one of the top priorities of an archaeologist is to try and always minimize or mitigate the waste of information and those qualities that make a site significant. When archaeology needs to answer to the interests of shareholders this issue becomes less of a priority and heritage suffers as a result.

British archaeologists also need to be more critical of those organizations and institutions that support salvage projects. The Royal Naval Museum, which actively supported the *Cambridge* project, should have been taken to task for their involvement. It seems almost criminal for government funds to be used in support of a program that benefits private collectors at the expense of public property. But national governments have been supplying military support to commercial salvage operations

for many years and until the archaeological community points out the problems this creates they will continue to do so.

TEACHING PROFESSIONAL MARITIME ARCHAEOLOGY

Teaching professional maritime archaeology is critical to the future survival of the field. In the past, a lack of educational opportunities prevented many enthusiastic and bright individuals from becoming professional archaeologists. Greg Stemm is one example of a highly intelligent person who followed another path because there was no maritime archaeological training available. He states:

> "I found myself very much attracted to marine archaeology. When I went to school there were no marine archaeology programs, so I majored in marine biology, which was about as close as I could get to monkeying about underwater. One thing led to another, and I ended up in a whole different field, I ended up in the advertising/marketing business through a series of coincidences." (Appendix E - Section V: lines 137-142)

It is unfortunate for maritime archaeology underwater that this individual's special talents were not directed towards a professional career in archaeology, instead of being channeled towards the field of commercial underwater salvage. The danger of not having adequate educational opportunities appears to be clear.

In those countries with well-developed programs in maritime archaeology underwater, such as the United States, Australia, Denmark, Ireland, and Britain, the academic growth of maritime archaeology seems to be making steady progress. But even in these countries it remains an area of archaeology underrepresented. In the United States there are over 200 universities and colleges that offer degree programs in archaeology, but only four universities (Texas A&M, East

Carolina University, Florida State University, and the University of Hawaii) offer specific training in underwater archaeology. The situation outside of these countries is even worse, with many countries such as Italy, Germany, and South Africa having limited educational and career opportunities. What other activities are prospective students turning to in those countries with no formal educational training? Treasure hunting represents an enticing alternative for those interested individuals who are presented with no other options.

The archaeological study of submerged shipwreck sites seems to be a subject too often overlooked, and at times, under appreciated by the wider archaeological community (see Bass 1966, 1998). It has been noticed that the study of shipwrecks is still not included in mainstream textbooks, despite the fact that they have the potential to provide archaeology with the most complete record of art and technology possible (Bass 1998). However, the potential of shipwreck sites and maritime archaeology underwater in general will not be fully realized unless the field is more fully integrated into the broader curriculum of more archaeology programs. Even at those universities that offer degree programs in maritime archaeology underwater integration with land-based archaeology has not been seamless. Commenting on the academic divide between maritime archaeology underwater and terrestrial archaeology at Texas A&M University it was noted:

> "...it was clearly evident that land-based and maritime archaeology had arrived at very different view-points in spite of the fact that they had both existed at the university for about the same length of time." (Bill 1996: 24)

Problems in Academia

The Society for American Archaeology, Society for Historical Archaeology, Archaeological Institute of America, and American Anthropological Association have

all acknowledged a crisis in current approaches in the training of undergraduate archaeology students (George Smith, co-chair of the Society for American Archaeology Task Force on Curriculum, personal communication 2001). Changes in the field of archaeology, such as funding shortages, shifts from academic to private funding sources, dramatic increases in site destruction and looting worldwide, emerging political activism among aboriginal and native groups, complex new government oversight and regulations, technological innovations, and increases in the scientific knowledge base, have outpaced the ability of educators to accommodate these changes with their current teaching strategies.

When asked if the academic institutions adequately prepare graduate level students for working in the field of maritime archaeology, less than 10% of those surveyed chose "yes" as an answer, 40% chose "yes, but it could be improved," and a large proportion, 38%, chose "no" (Appendix D, QD11). The high percentage of those who answered "no" indicates a problem in academia, one that needs to be addressed. The most commonly cited problem with the current training of professional archaeologists relates to issues of practical training (Appendix D, QD12). Various problems with practical training include:

1. Students need more practical experience, more fieldwork experience, and better fieldschools to prepare them.
2. There needs to be more teaching which focuses on boats, sailing, and navigation.
3. Training in the principles and techniques of land archaeology needs to be taught first before training in the principles and techniques of underwater archaeology; excavation experience should be a prerequisite for maritime archaeology graduate students.

Other improvements that could be made include more training in languages, the marine environment, theory, cultural resource management, historic preservation legislation, and more multidisciplinary training as a whole.

Another disadvantage of many graduate programs in maritime archaeology, such as Texas A&M University and the University of St. Andrews, is the liberal acceptance requirements for graduate students concerning their archaeological backgrounds. Many students have been accepted into graduate programs with Bachelor degrees in totally different subjects, resulting in a relatively narrow view of maritime archaeology and its field of work (Bill 1996: 23).

There was also an indication that a lack of career development was severely hindering the ability of students to find employment after graduation. This directly relates back to the issues surrounding practical experience. Students may be able to pass their examinations with high marks, but as soon as they enter the job market they find they do not have the skills to actually do the work. Today archaeology is more than just landing a position with a university or museum. Contract archaeology and the rise of professionalism are demanding a rise in academic training. As was discussed in the previous section, dealing with professional accreditation, to become a registered professional an archaeologist needs a minimum of one-year experience, which includes fieldwork, laboratory analysis, and supervisory training. In most underwater fieldschools, which typically last from 3 to 10 weeks, this length of training is rarely offered. It seems unsatisfactory that when students of archaeology graduate they are still not fully qualified to be considered a professional because they lack experience.

Two areas that may be hindering practical training opportunities involve health and safety regulations and competition from non-professionals and sport divers. The sometimes overly restrictive requirements imposed by health and safety regulations and concerns of personal injury litigation act as a disincentive for universities to offer

practical underwater training that may be hazardous. Because underwater research is an expensive pursuit, the use of sport divers as volunteer labor over having to pay a student becomes an attractive offer to project managers.

There may also be a problem with the attitude of modern-day students themselves. To succeed individuals must possess a certain degree of self-motivation and ambition. Many of the first generation of maritime archaeologists were raised in a world where hard work, self-sacrifice, and determination seemed to be more characteristic of Western society. But today modern culture tends to be more about convenience and many of today's youth seem to expect things to be given to them. George Bass has commented on the current lack of ambition in the graduate students of today by stating:

> "So I'm not adverse to providing opportunities. I try to do it all the time. I went with Ralph Pedersen to Bahrain to introduce him to people so he could do a survey there, which he did. I took Jack Neville to a lady out in Bulgaria when he wanted to work there, to sort of open doors. These opportunities still arise, but for some reason the students don't pick them up quite so quickly as they did, and I don't know why that is. Rodney Young just gave me an opportunity, and I took it and ran with it and sort of turned it into a field, with an institute, with an academic program.... So in the 60s it worked out very well. But now--and I don't want to name names--I give opportunities to people and they go out and don't do anything with them. And some of these people, for reasons unknown--I suppose they sort of have to break the umbilical cord-- have shown no appreciation. I had to leave Penn [University of Pennsylvania] to develop my independence and not stay under Rodney Young's shadow for the rest of my life. I was 40. A lot of people have to do that. But I've always talked about him in worshipful tones because he did so much for me. So it sort of hurts

> that someone I've given an opportunity to, raised the funds for the project, turned it over to them, and when they leave they don't have a nice word to say about me, or Texas A&M, or INA. When that has happened, it hurts badly, and I don't know what causes it. That is my greatest disappointment in the field, frankly." (Appendix E - Section I: lines 275-299)

It is unclear how widespread this problem is, or even if it is a real problem, but if maritime archaeology underwater is to continue to expand as a field of research its teachers must encourage students to be more self-motivated in the development of their professional careers. Students likewise must be more willing to exploit opportunities when they are given them, as well as taking on the responsibility of creating their own opportunities and research projects. Getting a degree is a commendable achievement, but there are no guarantees of a job in the field after graduation.

SUMMARY

The move toward professionalism in maritime archaeology underwater can be seen as a step forward for the field. For much of its history, maritime archaeology underwater has suffered from a low degree of professional credibility, resulting in some disconnection from the mainstream community. Any step that moves it closer to the center of modern archaeological practice can only be viewed as a positive development. More integration and collaboration with terrestrial colleagues will help to remove many of the barriers that exist between land archaeologists and underwater archaeologists, creating a more seamless approach to the study of our maritime past. A more professional image will also help the public and the media to distinguish between real maritime archaeology underwater and treasure hunting.

The adoption of high ethical standards will also aid in the development of maritime archaeology underwater. The mainstream archaeological establishment has made it clear that the commercialization of archaeology (the buying and selling of objects out of an archaeological context) is not an acceptable practice, and archaeologists who excavate shipwrecks should all adhere to this principle. However, it has been shown that not all maritime archaeologists feel the selling of artifacts is wrong, and in some cases it is acceptable. But maritime archaeology underwater can ill-afford to compromise basic archaeological principles and the lure of commercial archaeology should be avoided at all costs.

Some changes in the teaching of maritime archaeology underwater need to be made if the progress the field has made over the last 40 years is to continue. The development of professionalism and archaeological ethics is creating new demands on how maritime archaeology is taught and the potential career path of future archaeologists. More integration between maritime and land-based archaeology programs is needed as well as revised prerequisites for graduate students. If maritime archaeology underwater cannot offer prospective students a future career, or if it does not educate them about the negative impact of commercialization, then there is the real danger that some will turn their skills to salvage projects whose primary interest is the recovery and sale of artifacts.

CHAPTER 7: ASSESSING THE LAST 40 YEARS OF MARITIME ARCHAEOLOGY

"Interpretation is almost the end product of an archaeological investigation because it represents the story behind the material that was found and how it relates to both the past and the present." (Babits and Van Tilburg, 1998:533)

ASSESSMENT OF THE LAST 40 YEARS

Currently, the top 10 individuals considered to be the most influential in the development of maritime archaeology underwater are:

1. George Bass
2. Keith Muckelroy
3. Peter Throckmorton
4. Jacques-Yves Cousteau
5. Colin Martin
6. Jeremy Green
7. Ole-Crumlin Pedersen
8. Robert Ballard
9. Richard Gould & Richard Steffy (tie)

(Appendix D - QD13)

These 10 represent the leaders of the field, individuals who expanded underwater research and establish maritime archaeology underwater as a legitimate subject of study and not simply a hunt for sunken treasure wrecks. The fact that the accomplishments for most of these individuals took place within the last 40 years supports the view that the majority, if not all, of the most significant developments in maritime archaeology underwater have taken place within this period.

It is also telling to compare the relative scores for each of these 10 individuals (Figure 4). George Bass is clearly the most commonly recognized name in the field of maritime archaeology underwater and his high score (272) reflects his relative importance to the field's development. The next highest score for Keith Muckelroy

(120), although less than half that of George Bass, is impressive given his influence on the field was limited to less than 10 years.

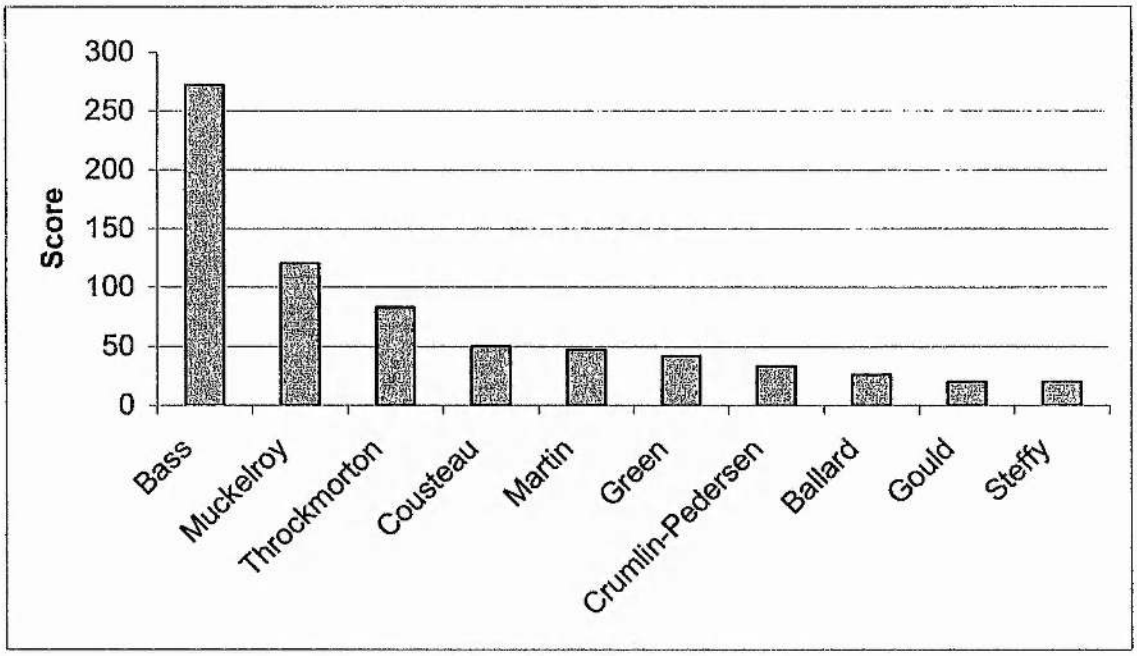

Figure 4. Scoring of the 10 Most Influential Individuals in Maritime Archaeology Underwater

Jacques-Yves Cousteau's international public profile, his development of SCUBA, and the work he conducted with Frederic Dumas opened the way for others to become involved in the investigation and preservation of shipwreck sites. Although not an archaeologist and criticized for his lack of care concerning the recovery of artifacts (see Goggin 1960), Cousteau deserves his ranking. Many of the others within the top 10, such as Bass, Throckmorton, and Martin, probably would not have achieved their accomplishments without the pioneering efforts of Cousteau, which led to the advent of sport diving and opening up of all underwater research.

The last 40 years have seen maritime archaeology grow out of its academic and professional infancy and into its adolescence. This is evidenced by comparing the seven research themes identified by Keith Muckelroy in 1978 with the actual research that has been conducted since then. Muckelroy believed that it was critical for

researchers to adopt these themes if maritime archaeology underwater was to realize its full potential. These included:

1. Research into prehistoric craft
2. Medieval shipbuilding in north-west Europe
3. Shipbuilding in Asia
4. Inland water craft
5. Pre-1500 trade outside the Mediterranean
6. Anchors and anchorages
7. Deep water exploration and excavation (Muckelroy, 1978: 127)

A review of the current literature indicates that all of these themes have now been incorporated into the overall study of maritime archaeology underwater. Although there should be more publication concerning the topics of theory and cultural process, the quality and diversity of the work being published today has improved significantly over the last 40 years. Bass states:

> "The quality of the papers at these conferences I think is astonishingly good now. It's not technique-driven anymore. You know, people giving endless papers on the latest side-scan sonar or something like that. The land archaeologist doesn't give papers about what jeep to drive or what's the best trailer to haul stuff in. So I'm very pleased about that.
> (Appendix E - Section I: lines 166-170)

In the early development of modern maritime archaeology underwater, publications tended to overemphasize underwater techniques of excavation and reports were regularly descriptive in nature. Today, however, the trend is moving towards more interpretation and explanation, with a greater emphasis on history and culture,

not just technique. Technology is still a common subject of publication, but it no longer predominates.

When asked what has been one of the most significant developments in maritime archaeology underwater since the Cape Gelidonya excavation in 1960, survey respondents provided a number of examples (Appendix D, QD 10). Some of the more common responses included:

1. Historic preservation legislation and cultural resource management
2. The development of deep water techniques or technology in general
3. The development of academic programs specific to maritime archaeology
4. Maritime archaeology being recognized as a legitimate part of archaeology as a whole
5. Development of underwater recording techniques

There were also a few who stated that there had been significant developments in all areas of maritime archaeology. As this study indicates the emphasis has been on technological developments, either generally or in the area of deep-water exploration. But all of these noted achievements still have potential for improvement. There remain problems with the current state of historic preservation legislation, deep-water archaeology is being overshadowed by the commercial salvor, there are problems in academia involving the teaching of maritime archaeology and career development, and although maritime archaeology underwater has moved closer to the center of the mainstream it still remains largely particularistic in its approach.

When asked what he considered to be the most significant development for the field over the last 50 years, Bass stated:

> "Oh, without question, turning it into an academic field so that now people who go out and start doing this [maritime archaeology underwater] are ten times better prepared than I was when I did it." (Appendix E - Section I: lines 139-141)

As previously mentioned, a review of the current published literature is greatly encouraging. There are now more articles, of a higher scholarly standard, covering many different areas of the maritime past. The field's own professional journal, the *International Journal of Nautical Archaeology*, has been a momentous development in the intellectual growth of maritime archaeology underwater. Professional conferences are now a regular occurrence and the level of interaction with land-based colleagues is improving. The level of excellence in scholarship has definitely improved and seems to be a trend that will continue.

The development of maritime archaeology underwater in Australia and Denmark can be viewed as two of the field's most successful programs. Australia was one of the earliest to pass proactive historic preservation legislation and it has continued to improve the management, study, and protection of that country's maritime heritage. The Australian Cultural Development Office and the Australian Institute for Maritime Archaeology have been key players in trying to improve the state of maritime archaeology. In 1994, these two organizations published guidelines for the management of shipwrecks that represents a fully integrated framework designed to be accessible by both the professional community and the general public (Henderson 1994). This proactive stance should serve as an example for other countries that are struggling to develop their own management programs. The only weakness of the Australian system seems to be a slight underdevelopment of academic opportunities offering higher research degrees.

Denmark's Center for Maritime Archaeology has developed a program that integrates both underwater and land-based archaeological projects. It is well funded,

receiving a grant of 10 million Danish kroner per year from the Danish National Research Foundation in 1998, which will keep the Center running until at least 2003 (Crumlin-Pedersen 1998: 3). With a staff of over 20 researchers, the Center for Maritime Archaeology has built a wide-ranging interdisciplinary and international department that carries out work involving the research into Denmark's rich maritime heritage. By working with the Viking Ship Museum and the National Museum's Institute for Maritime Archaeology, the Center has also developed conservation and public education programs for their research projects. These three entities jointly publish a bi-annual newsletter, *Maritime Archaeology Newsletter from Roskilde Denmark*, which covers a range of maritime topics including the excavation of Stone-Age sites along the coast (Andersen 1998), marine artifact conservation (Gregory 1997), and ship reconstruction (Sørensen et al. 1998). What is even more impressive about this free publication is that it is printed in both Danish and English.

Maritime archaeology underwater in the United States has also been very successful, primarily due to high levels of funding and a proactive system of heritage management. But the United States also has some of the best-organized commercial salvors in the world and it is proving to be a hard fight in convincing the courts to rethink hundreds of years of admiralty law. Academically, the field in the United States has also seen much improvement and the Nautical Archaeology Program at Texas A&M University is recognized as being one of the best in the world.

While maritime archaeology underwater in Britain has seen its own positive growth, it has not shared the same degree of success as seen in the United States, Australia, or Denmark. However, there are several significant developments that deserve mention. In Scotland, the Scottish Institute of Maritime Studies at the University of St. Andrews has been one of the leading academic institutions in the study of the maritime past and the training of underwater archaeologists. The Archaeological Diving Unit is also a positive influence and it has consistently expanded it capabilities. Colin Martin's investigation of the Duart Point Wreck is a

model of how future maritime research should, and most likely will, be conducted in Scotland by utilizing conventional means of funding, publishing results consistently, and encouraging public visitor programs which allow the sport diving community to share in the maritime past without negatively affecting it.

In 1999, Historic Scotland issued an Operational and Policy Paper concerning the future conservation of Scotland's underwater Heritage. The papers states:

> "Historic Scotland, in performing all of its responsibilities, will aim to afford the underwater heritage no less careful consideration than its terrestrial equivalent." (Historic Scotland 1999)

To achieve this objective, four core aims are identified, which include:

1. Development of a long-term protection regime of the most important underwater sites
2. Pursue a management process of key sites which are under threat of degradation or complete loss
3. Undertake data recovery in those cases when a site cannot be saved
4. Encourage more publication of maritime-related research

The policies that have been adopted to achieve these aims are quite proactive and represent a forward-looking approach to solving the problems facing Scotland's maritime heritage. One of the most striking plans is the policy which encourages the police, Procurators Fiscal, and other authorities to prosecute those who violate either the Ancient Monuments and Archaeological Areas (AMAA) Act of 1979 or the Protection of Wrecks Act of 1973. This move by Historic Scotland to bridge the gap between land and water is very encouraging and the field of maritime archaeology underwater in this region seems to be addressing issues head on. In fact, Historic Scotland is already moving forward with its plans to protect the scuttled fleet of

German warships sunk at Scapa Flow in 1919 by scheduling them under the AMAA (Ian Oxley, personal communication, 27 March 2000). Unlike the Protection of Wrecks Act of 1973, listing the Scapa Flow fleet under the AMAA has the advantage of allowing sport divers full access to the site, but at the same time legally discouraging them from altering or damaging any of the wrecks.

Outstanding research is also being undertaken by several other organizations across the United Kingdom, including the University of Southampton's Center for Maritime Archaeology, the Hampshire and Wight Trust for Maritime Archaeology, the University of Ulster's Center for Maritime archaeology at Coleraine, and Wessex Archaeology. The University of Southampton's Department of Archaeology is one of Europe's largest and it regards maritime archaeology as a core research theme. In addition to offering courses in hydrographic survey, ancient shipwrightry, ship science, underwater photography, underwater recording, and excavation, the Center is involved with a wide-range of research projects. One project, the Boats of South Asia and South China Seas Project directed by Dr. Lucy Blue, is particularly interesting because it is a maritime ethnographic study that for the last five years has been recording traditional vessels of the region with the aim of examining construction, environment, and use. The Center is also sponsoring the Sixth International Conference on Waterfront Archaeology in conjunction with the Hampshire and Wight Trust for Maritime Archaeology. Over the last several years these two organizations have worked together on a variety of projects to promote research, knowledge, and public interest of maritime archaeology and heritage. The Hampshire and Wight Trust's SolMAP project, which for the last three years has investigated a number of sites located within the western Solent, is another excellent example of an underwater archaeological investigation that brings together professionals, trained amateur divers, and university students.

Although the University of Ulster's Center for Maritime Archeology was only launched in April of 1999, it is already engaged in a variety of ongoing terrestrial and underwater research projects, including the Strangford Lough Inter-tidal study, the

investigation of the 1797 French frigate *La Surveillante*, the maritime landscape study of Bantry Bay in West Cork, and a collaborative project with the Kenyan Museums Authority and the British Institute of East Africa investigating the East African coast. Finally Wessex Archaeology, an independent non-profit making archaeological contracting firm established in 1979, has expanded its capabilities to include maritime archaeological services. Their expertise, in both terrestrial and underwater investigations, help agencies deal with the problems of coastal erosion and the impact of development and recreation on maritime heritage. Wessex is also an organization that provides work experience and opportunities to more than 100 qualified archaeologists.

It is interesting to note that many of maritime archaeology's strengths also seem to be its weaknesses. As previously mentioned, the most commonly mentioned failures of maritime archaeology underwater are mostly related to issues of communication and education (Appendix D, QD 6). So, while there have been significant gains made in the development of academic programs, scholarship, and media attention, there are still challenges that need to be met in these areas if progress is to continue. Other failures mentioned by survey respondents include:

1. Lack of publication, especially publications geared towards the general public.
2. To work well with divers.
3. Failure to effectively communicate and educate the general public concerning the value of maritime archaeology. Archaeologists don't make history interesting enough.
4. Failure of cultural resource management to effectively protect underwater sites. This is both a failure of government and of cultural resource managers.
5. There is widespread lack of a coherent standards and practice among maritime archaeologists creating an ad hoc approach to the study of maritime archaeology. There are also, at present, no enforced accreditation standards. It is still perceived by many to be a field run by non-professionals.

6. The educational programs have failed to effectively train underwater archaeologists.
7. Maritime archaeologists have failed to find a middle ground approach to working and cooperating with salvors and or sport divers. They have not convince these groups of the value of archaeology over treasure hunting.
8. Maritime archaeology has failed to integrate well with other disciplines, as it tends to be too self-centered and isolated.
9. Lack of funding for survey projects designed to locate undisturbed sites.
10. Maritime archaeology has failed to integrate with mainstream archaeology.
11. Maritime archaeologists have tended to be too backbiting, petty, and elitist, which has excluded other groups with a shared interest maritime subjects.
12. There has been too much emphasis on excavation/fieldwork techniques
13. Maritime archaeologists have typically failed to get into the water as soon as technology allowed them to.
14. The field has overlooked the vernacular segment of maritime culture.
15. There have been too many compromises with treasure hunters.
16. The field has failed to move beyond the particularist approach. What is needed is more synthesis of existing data and less focus on individual shipwreck sites.
17. There has been too much emphasis on high profile projects (such as the Mary Rose, Vasa - author's note) which has hurt the proliferation of smaller scale projects.

These comments are not considered to be flaws that invalidate the study of maritime archaeology underwater; however they do reflect issues that need further attention.

Communication with the general public and sport divers is commonly cited as underwater archaeology's biggest failure. Although the mistakes of pre-modern maritime archaeology underwater, involving the destruction of artifacts, the harvesting of antiquities, and the lack of published research have been overcome, the outdated image of maritime archaeology underwater as treasure salvage continues to nag the field. Maritime archaeologists, such as George Bass and Colin Martin, have produced

many televised specials that highlight the distinctions between archaeologists and salvors, but treasure hunters have been just as effective in blurring the line between science and salvage. The fact that some see archaeologists as elitist, exclusive, and arrogant may also provide some insight into some of the reasons why archaeologists are finding it hard to effectively communicate with the sport diving community.

The legal situation is still proving to be inadequate and underscores the legal double standard that exists between land sites and underwater sites. With over 500,000 estimated wreck sites located within its territorial waters, the United Kingdom offers active protection to less than 50 (Darrington 1999: 44). This is unacceptable. The ethical contradiction of allowing those who destroy the underwater maritime archaeological record to participate in conferences needs to be resolved. If it is not, there is a real danger that the practice of treasure hunting will be given added credibility. A sending of mixed signals must not undermine the professional credibility of maritime archaeology underwater. The message must be clear. Salvage hurts maritime heritage and the sale of artifacts is unacceptable. Those programs or institutions that support such activities should be criticized. If this remains, the field of maritime archaeology underwater in developing countries will find itself moving backward instead of forward and the progress of the last 40 years will be negated.

Although English Heritage has also issued its own discussion paper like Scotland has (English Heritage 1999), its recommendations have not yet come into effect because of substantial governmental bureaucracy. The longer it takes for these changes to take place, the more maritime heritage will suffer. In 1989 the Joint Nautical Archaeology Policy Committee published several proposals for improving the way underwater sites were protected (JNAPC 1989). But unfortunately, over 10 years later, very few of these recommendations have been adopted. Developed and developing countries are not finding the time to address these issues.

Finally, although maritime archaeology underwater is more integrated with the archaeological mainstream than it was 40 years ago, the field as a whole has not

achieved its goal of full integration, and there are still examples of the potential of maritime archaeology being overlooked in most textbooks (Bass 1998:50). Over the last 40 years there has been progress, but more needs to be done to accomplish unification and synthesis of research conducted above and below the water.

In summary, the success of maritime archaeology underwater, in such areas as Australia, Denmark, United Kingdom, and the United States, can be linked to the development of academic programs, proactive historic preservation legislation, and a sustained level of adequate funding for research, conservation, and public involvement and education. But there are still challenges to overcome in the areas of communication, education, and legislation.

ADDRESSING THE STATED RESEARCH QUESTIONS

So what has this review of maritime archaeology underwater shown? What has been learned to help guide the maritime archaeologists of the future? To answer these questions we must return to the four primary research issues identified in Chapter 1.

Issue 1: Perceptions of Maritime Archaeology Underwater

It has been illustrated that maritime archaeology underwater, especially during the early stages of its development, is often confused with the practices of marine salvage and treasure hunting. This study has identified several causes for the perpetuation of this misconception, including:

1. A confused and inconsistent legal situation where the right to salvage a historic shipwreck has been judged to supercede a state's right to protect it.
2. The prodigal appeal of treasure salvage over archaeology and the successful recovery of incredibly valuable cargos from the sea.

3. The frequent use of marine salvage techniques instead of archaeological techniques to investigate sites during the pre-modern period.
4. A lack of trained archaeologists who directly investigated a site underwater during the pre-modern period.
5. The effective use of the media by treasure salvors and commercial archaeologists.
6. A lack of full integration with land-base archaeology and the adoption of historical particularism as the predominate theoretical paradigm.

In some cases archaeologists have not been able to effectively communicate with the general public and sport divers to dispel these myths. There are those in the archaeological community (Carrell 1996) who feel there is a real danger of losing the public relations battle with treasure hunters who have been much quicker to adapt and change their image into a widely popular one. This study has documented that a majority feels that the most common failures of maritime archaeology concern communication-related areas, such as publication, education, and working effectively with the general public and sport divers. Archaeologists have not taken full advantage of the broader media possibilities to get their messages across. Although the perception of maritime archaeology underwater as a professional field of study has improved greatly over the last 40 years, the false perceptions surrounding maritime archaeology underwater will continue to trouble the field as long as there are inconsistencies in the current legislation which permit the salvage of historic wreck sites to continue and archaeologists fail to distinguish themselves from the popular images of treasure hunting.

Ways to enhance the image of the field include improving teaching programs, working to fix the problems of historic preservation legislation, and utilize more facets of the public media. Only by striving to become more scientific and more professional will maritime archaeology underwater gain a higher level of respect in the eyes of the general public as well as among archaeologists. But the mistakes of the past are in danger of being repeated again, particularly in the realm of deep-water archaeology.

Commercial salvors are heavily involved in this field and there are few professional archaeologists with extensive training in ROV techniques. History has shown that disaster awaits those excavation projects where the archaeologist is disconnected from the archaeology.

Issue 2: Relationship Between Sport Divers and Maritime Archaeologists

Sport divers have been a mixed blessing for maritime archaeology underwater. It has been shown that sport divers have played a major role in helping the field grow, but equally they continue to damage the finite maritime archaeological resource and they resist some laws that would help to protect shipwreck sites. So what should be the role of sport divers in maritime archaeology? One thing is certain, they should become the allies of the archaeological community and not its enemy. The work of cultural resource management units, like the ADU in Britain, has proven that through cooperation and involvement the destructive behavior of collecting dive trophies can be changed. But it has also been shown that it only takes a selfish few to cause a significant amount of damage and much more work needs to be done to address this problem.

Maritime archaeologists must remember that sport divers have as much right to claim access to historic wreck sites as any other interest group. But access is different than disturbance. Like land sites, the access to important submerged shipwreck sites must be controlled via an underwater park system, but there are currently only a small number of these in existence. If a concerted effort is made, sport divers can have a major role in helping to develop such a system and in the creation of other site stewardship programs. The successful lessons of land cultural resource management must be applied to more underwater sites, but this will never happen without the participation of the sport diving community. More urgently, if this group feels it will be excluded from participation, then there is a good chance it will start to ally itself with treasure salvors. The key is effective communication and cooperation. In every monthly issue of the most popular dive magazines there should be at least one article

written by an archaeologist expounding the virtues, benefits, and fascination that underwater maritime research, not salvage, has to offer.

Issue 3: Marginalization of Maritime Archaeology Underwater

For most of its existence, maritime archaeology underwater has been seated near the fringe of mainstream archaeology. As this study has indicated, the causes for this are manifold. First, because the first archaeologists to investigate submerged shipwreck sites did not dive, an artificial barrier was created that separated researcher from subject. The recovery of objects from the seabed was delegated to professional divers who employed the techniques of salvage instead of archaeology. This inevitably led to many mistakes and the loss of data. The objective of these early projects typically focused on the cargoes and not the ships themselves, resulting in the loss of additional information that could have been preserved. The work carried out underwater was not of the same standard as that carried out on land, and this tended to give terrestrial colleagues a deeply negative impression of underwater research.

When it was first introduced, SCUBA was considered to be a very specialized profession that was both difficult and dangerous. It wasn't until the advent of sport diving that land archaeologists, like George Bass, started to directly investigate submerged sites directly. This marked the beginning of modern maritime archaeology underwater.

The second cause for the field's marginalization has been its overall reluctance to address theoretical issues in the same manner that land-based archaeology did during the 1960s and 1970s. Only in the late 1970s did Keith Muckelroy start to explore this area, but by the time these ideas began to spread land-based theory had already moved on to post-processualism. The story of maritime archaeology underwater appears to have been a repeating pattern of following behind instead of leading the way.

The field's own identity crisis has been the third cause. In the early days, those who first started to investigate shipwreck sites, like Dumas and others, felt they were creating a new branch of archaeology that was distinct from the practices on land. As a result, too much emphasis was made in distinguishing the two separate pursuits and not enough on integration. By differentiating itself in this way early on, maritime archaeology underwater only helped to push itself away from the mainstream.

Fourthly, there were those treasure hunters and rich adventurers who portrayed themselves as underwater archaeologists, especially during the 1960s and 1970s. People like Edwin Link, Robert Sténuit, and Robert Marx walked and talked like archaeologists, but when it came to research and the selling of artifacts, they didn't act like archaeologists. In the end, the field as a whole suffered a great loss of professional and academic respect, as most traditional archaeologists looked on in dismay as recovered assemblages of artifacts were sold at auction.

Lastly, the few archaeologists who have cooperated with treasure hunters and commercial salvors have undermined the professional credibility of the field and will continue to do so if more steps are not taken to sanction and exclude such behavior. The case of Duncan Mathewson working with Mel Fisher is a prime example of how these relationships have failed, not succeeded. To date it has not been proven that working with these groups benefits archaeology in any recognizable way.

How can maritime archaeology work to integrate itself more fully with the professional mainstream? Over the last several years the field has made substantial progress in this area, but more can be done. Every maritime archaeologist should be encouraged to become registered as a professional, binding themselves to a code of ethics and practice that will help maintain standards across the board. Maritime archaeologists should also be encouraged to publish their research in more mainstream professional journals, such as *American Antiquity*, and attend conferences that do not focus entirely on maritime or underwater subjects. The level of integration the field

has achieved in such places as Denmark and Australia should be the goal of every region.

Issue 4: Relationship Between Professional Salvors and Maritime Archaeologists

When one examines the history of marine salvage, the reasons for its continued existence becomes clear: legal endorsement, governmental sponsorship, marine insurance, media attention, and profit.

The arguments for and against the sale of antiquities were outlined in Chapter 6. The results of this study indicate that, at least anonymously, many archaeologists acknowledge that the sale of artifacts may be acceptable under certain conditions. But this position has been argued against. If the sale of recovered finds is allowed to become an accepted practice, the reputation of maritime archaeology underwater would suffer irreparable damage and the field would then become professionally and academically isolated from the mainstream. It may look reasonable at first glance, but in the long term its effects would be catastrophic. The arguments that support the selling of artifacts do have a certain degree of logic and practicality, but so far they have not been proven to benefit archaeological research. Underwater archaeologists must not be seduced by arguments that are anathema to most land-based archaeologists. The proposed option of commercially salvaging historic shipwrecks is no option for maritime archaeology underwater.

Although treasure salvors have reinvented themselves as commercial archaeologists, underneath the business suits remain the same old motivations that have threatened submerged cultural resources for the last 100 years, selfish profit. Profit in itself is not a bad thing, but when it comes at the expense of others, then it is. Maritime heritage is a cultural resource to be shared by all, not just a few. This axiom applies to archaeologists as well. If the primary motivating factor behind the excavation of a shipwreck is profit, and issues of heritage preservation are secondary,

then the path of commercial archaeology is one that professional archaeologists must steer away from.

The best way to resolve this situation is to correct the current problems in legislation, improve communication skills, and give more emphasis to public education and involvement in legitimate research projects. Archaeologists should also continue to maintain an open dialogue with the salvage community through such forums as the Sub-Arch discussion group. Although this research supports a hard lined approach to dealing with salvors, maritime archaeologists must keep the lines of communication open. It is an industry too well organized, too well funded, and too effective in public relations to ignore. There is the potential that in the future the archaeological community may be able to cooperate with the salvage industry if the issues identified can be resolved. Professional archaeologists should be discouraged from working with commercial salvors on historic wreck sites, the damage to the field's professional reputation and credibility are too great. But the field must also keep an open mind so that it can fairly assess the situation in the future.

PROPOSALS FOR THE FUTURE OF MARITIME ARCHAEOLOGY UNDERWATER

Bass has stated that better methods for locating submerged sites and better conservation techniques are two major areas where the field of maritime archaeology still needs to develop (Bass 1998: 53). Add to these deepwater exploration and excavation, improved education programs, more public outreach and involvement schemes, funding, and imagination. If the future growth of maritime archaeology is to be positive and constructive then researchers need to think about tomorrow. Four proposals for what the field needs to do, in the short and long terms, are presented as possible solutions to some of the challenges facing it today.

Improving Public Communication

Archaeologists don't need to sell artifacts to fund their research; they need to sell the ideas behind their research. By informing the public of the wonders true maritime archaeology has to offer, the field should be able to capitalize on public as well as corporate sponsorship. More self-advertisement is needed, not more artifact auctions. The best way of improving communication with the public is to include popular magazines as one of the avenues for disseminating results and to foster closer ties with television media. Although some archaeologists have started to engage the popular media more fully, more could be done.

Cultural resource mangers also need to direct more resources into research designed to understand and appreciate the attitudes of the sport diving community. Identifying the concerns of sport divers is the first step in trying to build new working relationships. Communication with the public can also be improved by speaking at grade schools and secondary schools. By capturing the imagination of younger students it will be easier to dispel the myths of salvage and it will help to attract future students of the field.

The internet has become a powerful media tool and archaeologists have been quick to utilize it. Unfortunately, so have treasure salvors who portray themselves as conservationists. Regular monitoring of internet websites for treasure salvors should be conducted so the archaeological community can stay abreast of new developments and challenge more effectively those who buy and sell artifacts. In communicating with the public, either via the world-wide-web or other popular media, archaeologists should avoid the old cliché of a shipwreck as a horde of sunken treasure and distinguish archaeological research from salvage. News reporters and television produces should be encouraged to avoid the term "treasure" when referring to an archaeological project.

Finally, more underwater visitation parks need to be established in cooperation with sport divers to heighten public awareness concerning maritime heritage and the dangers, both natural and man-made, that threaten it. Better communication with sport divers can be achieved by involving local dive clubs in stewardship programs and participation in research projects. This has worked in the past, on such projects as SUBMAP and SolMAP, and it is a trend that should be encouraged in the future.

Improved Legislation

The most important recommendation for the future of the field as a whole is an improvement in historic preservation legislation. Underwater heritage is suffering and a potential legal double standard between land and sea sites must be avoided. The public must see that all archaeological sites are treated consistently under the law. This not only helps to preserve important shipwreck sites, but also it will have the added benefit of improving the professional image of maritime archaeologists in the eyes of the public and in the eyes of terrestrial colleagues. To achieve this goal archaeologists need to become more politically active. Local and national politicians should be invited to visit research projects during all stages of work. This will help cultural resource management programs and draw attention to the dangers of treasure salvage.

Improving Academic Standards and Training

The students of today are the professionals of tomorrow. The future of maritime archaeology depends a great deal on how well students are taught, trained, and integrated into the work force. Current standards of acceptance may be too informal for meeting the professional standards of today. In the past, most maritime studies programs would accept applicants regardless of their background education or experience. This may no longer be an effective practice. Undergraduate qualifications in archaeology and anthropology should be an added requirement for admission into a higher degree program. Previous experience in the principles and practices of land

archaeology could also help in bridging the gap between the terrestrial mainstream and the underwater maritime fringe.

One of the most pressing problems in academia involves a general lack of practical training. New internship programs must be established which helps new graduates enter the real world of professional archaeology. This program must offer the hands-on-training that field schools presently give, but in a way which is much more long term. It takes years to make a professional archaeologist, not just 10 weeks. Archaeological contractors who would benefit from such a program could be a partner in its implementation, helping students learn the ins and outs of historic preservation compliance, permitting, publication, and curation. The current intern systems employed in other fields, such as law, medicine, engineering, and geology, may present a model which archaeology could similarly adopt.

One way to help students become more effective after graduation is to provide specific and detailed training in the writing of grant proposals. No project exists without funding and it is the most basic requirement for beginning any research. Given its importance, it is surprising that most graduates have no idea of the process for applying for a research grant. To be effectively taught, students must be involved in an actual grant application from start to finish. They must also become familiar with which funding bodies are the most appropriate for their own research areas. In most cases professors seem to be very willing to lend their name to an application in support of a student's project, but if students have no familiarity with raising grant money they are unlikely to ask for this assistance. Training students in this area should become an integral component of all archaeology programs.

More Diversity of Research

Although the diversity of topics that are currently being researched by maritime archaeologists has improved substantially over the last 40 years, the potential of anthropological questions to explore the maritime sub-culture has not yet been fully

realized. There is still a strong emphasis on the ships and not enough on the people who sailed them. What are the unique characteristics that define a maritime sub-culture? How does seafaring affect social relationships, religious beliefs, language, hygiene, and sexuality? What other sources of information can be examined to understand the settlement of coastal zones? These areas of research should be encouraged because they have the potential to broaden our understanding of the maritime past.

CONCLUSIONS

The aim of this review was not self-deprecation, but instead to initiate a positive and continuing process involving constructive reflection. This process also should serve as a tribute to those pioneering individuals and institutions that helped to establish this remarkable field. It is unfortunate that many of its early architects, such as Phillipe Diolé, Phillipe Talliez, Keith Muckelroy, Peter Throckmorton, Frederic Dumas, and Joan du Plat Taylor have died. It is important that the contributions of these visionaries and others, such as Rene Beaucaire, Richard Steffy, Alan Bax, Peter Marsden, and many others, not be forgotten. In hindsight, is seems unfair to only credit George Bass as the founder of modern maritime archaeology, a sentiment he shares himself. But the contributions, and failures, of the pioneers of maritime archaeology should always be kept in context and not judged by today's standards.

The attitudes, accounts, and approaches of professional academics, cultural resource managers, amateur archaeologists, and salvors need to be documented for posterity. Systematically surveying the current attitudes of those involved in maritime archaeology underwater is an under-explored area of research, but one that offers an opportunity to identify issues, understand problems, and potentially formulate solutions. This dissertation attempts to combine these strands within an analytical framework and will hopefully inspire others to do the same.

Future students of maritime archaeology who may be unfamiliar with the people and ideas that helped to shape this remarkable and fascinating field will hopefully use this research in their studies. The documentation of events is how history is preserved. Those who desire a career in maritime research need to know the issues of the past in order to understand the issues of the present. The results of this study could also provide guidance to instructors of maritime archaeology by highlighting some of the problems in academia. As the field becomes more and more professional the issue of adequately training students will only become more important. In fact, more research in this area needs to continue to help ensure the health and productivity of our educational process. Within the last two to three years there have been some changes in the field, and only the passage of time will determine their significance.

Finally, this study closes with a quote from an interview with Dr. George Bass. Commenting on his success as an underwater archaeologists he says:

> "But why I'm here was not just because I went to Cape Gelidonya. It could have all ended there. I was not planning to return. It was Claude Duthuit and Wlady Illing, a Frenchman and a German, who were just skin divers, who said, "Oh, come on, we started something good. You've got to come back [to Turkey] because we can't get the permit, we're not archaeologists, but you can." And I said, "OK,." and we went on to another wreck and another wreck, and pretty soon four decades have gone by and we have an academic program and an institute and a museum to show for it." (Appendix E - Section I: lines 382-389)

This statement by the founder of modern maritime archaeology underscores the credit the field owes to the sport diving community and how the field has progressed in the last 40 years. Hopefully the next 40 will be even more spectacular.

APPENDIX A: PILOT STUDY QUESTIONNAIRE AND RESULTS

Appendix A

Dear List Members,

I am conducting research concerning the development of maritime archaeology. I would appreciate your assistance by answering the following questions. Please "cut and paste" the questions, with your answers included, into a new e-mail message addressed to me at:

gd9@st-andrews.ac.uk

If you feel others "outside" the list might be interested in contributing, feel free to pass it along. Hard-copy answers can be mailed to me at:

Glenn Darrington
Grange Flat, Grange House, Grange Road
St. Andrews, Fife
KY16 8LN
SCOTLAND

The results of this survey will be used in my Ph.D. research.

Thank you for your help and consideration in this matter.

Glenn P. Darrington
Scottish Institute of Maritime Studies
University of St. Andrews

QUESTION 1:
Do you consider yourself a : A) professional archaeologist; B) salvage professional; C) sport diver with an interest in archaeology; D) amateur archaeologist; E) a student working towards a degree in archaeology; F) treasure hunter; G) other (please specify)

QUESTION 2:
In what country do you live in?

QUESTION 3:
Who do you consider to be the 5 most influential people in the development of maritime archaeology?

QUESTION 4:
Have your ever taken a "dive trophy" off of a historic shipwreck (historic shipwreck defined as being older thank 50 years of age)?

QUESTION 5:
Do you feel that archaeologists are over protective of submerged sites?

QUESTION 6:
Do you feel that the historic preservation legislation concerning shipwrecks in your country is: A) too strict; B) about right; C) too lax; D) non-existent.

QUESTION 7:
Do you feel that the proposed UNESCO provisions for the protection of historic shipwrecks is a direct infringement on the freedom of divers? If so, why?

QUESTION 8:
Do you think salvage professionals and professional archaeologists: A) can never work together; B) could work together, but don't; C) have worked together but resulting in mostly failed projects; D) have worked together to some success.

QUESTION 9:
Do you think underwater archaeology training programs (like the Nautical Archaeology Society training scheme) helped or hurt the underwater heritage of your area?

QUESTION 10:
What, in your opinion, has been the greatest failure of maritime archaeology as a profession?

QUESTION 11:
Do you feel that the application of archaeological/anthropological theory is currently lacking in the field of maritime archaeology, and if so, why?

QUESTION 12:
Do maritime archaeologists in your area tend to be more historical particularist in their approach, or more anthropological?

QUESTION 13:
Do you feel that the sale of antiquities can be justified in certain situations? Please explain your answer.

QUESTION 14:
Please provide any references you know of for published historical/archaeological research which was conducted or funded by a salvage operation. (Web sites and "gray literature" are also applicable).

QUESTION 15:
Would you be willing to attend a conference where archaeologists, sport divers, and salvage professionals all came together to discuss the issues of historic preservation and who owns the past? If not, what are your objections to such a conference?

Appendix A - Pilot Study Results

	Q 1	Q 2	Q 3.1	Q 3.2	Q 3.3	Q 3.4	Q 3.5	Q 4	Q 5	Q 6	Q 7	Q 7.a	Q 8	Q 9
1	A	Northern Ireland	George Bass	Colin Martin	Peter Throckmorton	Jon Adams	Ole-Crumlin Pedersen	No	No	C	No		B	Help but ineffective
2	A	Scotland	George Bass	Mary Rose Team/ADU	National Park Service SCRU	Valerie Fenwick	Ben Ferrari	No	No	D	No		B	Help but no follow through
3	D	USA	Peter Throckmorten	George Bass	Jacques Cousteau	Mendel Petersen	Crumlin Pedersen	Yes	Yes	B	Yes	could be expanded to close sites to a multi-user c	D	Help
4	A	USA	Jacques Cousteau					No	No	C	No		C	Help
5	C	USA	Anders Franzen	George Bass	National Geogrpahic	Computer		Yes	Yes	B	Yes	too ambigious, 50 year limit bad, confusion over	B	Help
6	D	USA	George Bass	Peter Throckmorton	Jacques Cousteau	Keith Muckelroy	Bob Marx	No	No	C	No		C	no effect
7	A	Scotland	George Bass	Colin Martin	Jon Adams	Robert Grenier	Ole-Crumlin Pedersen	No	Yes	D	No		B	Help but needs to be developed more
8	A	Republic of Ireland	George Bass	Ole-Crumlin Pederson	Sean McGrail	Colin Breen (on Ireland)		No	No	C	No		B	helpful but lack of follow-up
9	G	United Kingdom	Colin Martin	Margaret Rule	Diole	Cousteau	Ballard	Yes	Yes	C	Yes	Divers have rights that might be threatened	A	no affect
10	B	USA	Peter Throckmorton	George Bass	Jacques Cousteau	Mel Fisher	John Broadwater	Yes	No	B	Yes	attempt to lock away all sites, contravenes established Admiralty Law and Law of the Sea	D	Help
11	A	USA	Keith Muckelroy	George Bass	Richard Gould	Honor Frost	Nic Flemming	No	No	C	No		C	Help by involving the dive community

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	Q 1	Q 2	Q 3.1	Q 3.2	Q 3.3	Q 3.4	Q 3.5	Q 4	Q 5	Q 6	Q 7	Q 7.a	Q 8	Q 9
12	A	Australia	George Bass	Keith Muckelroy	Richard Gould	Jeremy Green	Robert Grenier	No	No	C	No	No, underwater sites should have the same protection as on land	C	Help
13	A	Portugal	George Bass	Ole-Crumlin Pedersen	Nino Lamboglia	Ferdinand Benoit	Cousteau	Yes	No	B	No		A	Help to chase treasure hunters away from Portugal in 1993-1995
14	C	Nova Scotia Canada	George Bass	Prince Phillip				Yes	Yes	B	No	but a "knee-jerk" reaction aswell	D	hurt - give false message
15	A	USA	George Bass	Peter Throckmorton				No	No	C	No		B	Help
16	C	Northern Ireland	Brian Williams	Jon Adams	Cris Underwood	Rory Quinn	Deirdre OHara	No	Yes	B	Yes	but have not read proposal, going by what I have been told	D	Help
17	A	Canada	George Bass	Peter Throckmorton	Larry Murphy	Daniel Lenihan	K. Muckelroy	Yes	Yes	B	No	no, but it could use some work	A	hurt in some cases because it creates a "three week instant premadona"
18	E	USA	Mendel Peterson	Jacques Cousteau	George Bass	Keith Muckelroy	Peter Throckmorton	No	No	B	No		D	Help
19	E	Canada	Colin Martin	George Bass	Keith Muckleroy	Peter Throckmorton	Jaques Cousteau	No	No	B	No		A	Help to raise awareness
20	B	UK	Diole	Nick Rule	Jon Adams	Jeremy Green	Greg Stem	Yes	Yes	D	Yes		D	Help
21	A	Canada	Peter Throckmorton	Keith Muckelroy	George Bass	Harold Edgerton	Dick Steffy	No	No	C	No		C	Help

Appendix A - Pilot Study Results

	Q 1	Q 2	Q 3.1	Q 3.2	Q 3.3	Q 3.4	Q 3.5	Q 4	Q 5	Q 6	Q 7	Q 7.a	Q 8	Q 9
22	D	Portugal/Azores	George Bass	Kevin Crisman	Art Cohn			Yes	Yes	B	No	no opinion	B	do not help
23	E	Scotland	George Bass	Keith Muckelroy	Peter Throckmorton	Colin Martin	Frederick Dumas	Yes	No	C	No			Help but not much of an effect
24	E	Australia	David Bass(??)	Bob Ballard				No	No	C	No		C	No difference
25	A	USA	George Bass	Peter Throckmorton	Keith Muckelroy	Mendel Peterson		No	Yes	C	No		D	Could help, but not taught properly
26	A	Australia	George Bass	Keith Muckelroy	Jeremy Green	Honor Frost	ADU at St. Andrews	No	Yes	B	No		D	Help
27	B	USA	Willard Bascom					Yes	Yes	A	Yes	It is a conglomeration of archaeologists trying to control all wrecks. It is totalitarian: Will ma	A	
28	A	Scotland	Blundell	Dumas	Frost	Wignal	Bax	Yes	No	D	No		C	Help
29	A	Denmark	George Bass	Ellmers	Crumlin-Pedersen	Colin Martin		Yes	No	B	No		D	Help
30	C	USA	Mel Fisher					No	Yes	B	No	divers should be allowed to look but not touch	B	none done in my area
31	A	USA	George Bass	Peter Throckmorton	Keith Muckelroy	Donald Hamilton	Robert Ballard	No	No	C	No		A	definitely Help

Appendix A - Pilot Study Results

	Q 1	Q 2	Q 3.1	Q 3.2	Q 3.3	Q 3.4	Q 3.5	Q 4	Q 5	Q 6	Q 7	Q 7.a	Q 8	Q 9
32	A	Spain	George Bass	F. Benoit	N. Lamboglia	A. Marguet	R. Alfaras	Yes	No	C	No	Laws are paper	D	unknown
33	A	Scotland	Colin Martin	Oda Blundell	Ian Morrison	George Bass	Deane Brothers (19th century)	Yes	Yes	B	No		D	help, but danger of putting arch. out of work
34	E	USA	Robert Marx	John Broadwater				No	No	B	No		B	hepl to inform the public

Appendix A - Pilot Study Results

	Q 10	Q 11	Q 11.a	Q 12	Q 13	Q 13.a	Q 14	Q 15	Q 15.a
1	lack of integration with mainstream archaeology	Yes	theory is highly-overated	archaeology	Yes	The sale of nails could help fund more research	Atocha by Duncan Mathewson	Yes	
2	failure to make land archaeologists realise the importance of underwater sites	Yes	Lack of science, more arts based	historical particularist	Yes	money could be used for the long-terms survival of		Yes	
3	fail to spread information to public	No		historical particularist	Yes	when an over-abundance of antiquties is found	Atocha by Mathewson	Yes	
4	failure to communicate with the public abut the value of underwater archaeology vs salvage	No		historical particularist	Yes	but frought with danger of being misinterpreted	none	No	gulf between groups is too wide so no beneficial outcome
5	failure to talk to the public. Too much research and publication in specialized journals	No	not qualified to answer		Yes	Why let them sit in a storehouse. Use the funds to finance more research.		Yes	
6	failure to promote the idea that the past belongs to all	No		Historical particularist	No	Archaeology no, scrap yes Need to define the difference	none	Yes	
7	lack of funding, failure to promote the value of maritime archaeology to land archaeologists, involving amateurs in arch projects	No		historial particularist	Yes	But in only a few examples	Mel Fisher; Barry Clifford (Whydah)	Yes	
8	failure to engage the interest of their peers and the public	No			Yes	In the case of large numbers of identical finds.		Yes	
9		No			Yes	They are sold to museums so why not? Need to keep better records		Yes	
10	failure of "academic" Maritime archaeology to communicate effectively with the public and to integrate all interested parties	No		growing anthropological approach from historical o	Yes	Duplicates should be offered to other museums first, then to the genteral public.	Mathewson's work on the Atocha and "I think there are others also"	Yes	
11	failure to present a unified stance for the preservation of maritime sites	Yes	predominace of historical particularist views	historical particularist	No	no because the materials sold can not be re-studied which violates the scientific method	none exist of professional quality	No	Have several times

Appendix A - Pilot Study Results

	Q 10	Q 11	Q 11.a	Q 12	Q 13	Q 13.a	Q 14	Q 15	Q 15.a
12	Lack of academic standards and recognition in mainstream archaeology	Yes	Again, lack of academic standards and not enough arch dept	historical particularist, but beginning to change	No	No, cultural patrimony ideas, this material belongs to all people, not just some people	questions quality of them, but doesn't know of any	Yes	Yes, but some issues are not negotiable
13	do not publish enough or at all, not enough sharing of knowledge with the public	No		historical particularism	No	Never as a principle. Future tech may offer new analysis of old artifacts. Must keep stuff togethe	Michel L'Hour, short text on the hull of the San Diego salvaged by Frank Goddio	No	No, because it would be a waste of time and money
14	the atitude that sites should be left alone	No		historical particularist	Yes	bet more archaeology by the private sector who sells coins		Yes	Just did, sponsored by the provincial museum
15	failure to create better public image of the aims of archaeology, equate underwater archaeology with treasure hunting	No	is evolving along different lines than terrestrial	historical particularist	Yes	In the case of many duplicates to help raise funds	no good ones, but "something published on the Maple Leaf"	Yes	As long as it didn't degenerate into name calling
16	keeping the diver and laymen out from the field	Yes	again judged on what have been told	historical	Yes	yes, sell to museums and use the money to fund conservation	none come to mind	Yes	
17	the lack of it	Yes	because it doesn't work	anthropological	Yes	But that doesn't make it right, can justify anything.	McWilliams "Gunilda: The Persuite of Pleasure Afloat" assessment paper	Yes	But I wouldn't pay and needs to be civil
18	lack of funding	No		historical particularist	Yes	But not for rare items		Yes	
19	failure to convince land archaeologists of the value of inundated sites. Have not realized the value of inundated sites	Yes	work is often not put into a larger framework	historical particularist	No	Where do you draw the line		Yes	
20	lack of common touch, tendency to patronise and preach, failure to keep up with changes in technology	No			Yes	Museums don't want a lot of the stuff, any they have a wreck iin Plymouth that no-one will touch	Greg Stem - Dry Tortugas	Yes	The National Shipwreck Conference has run in Plymouth for the last 16 years. Over 150 attended last year.
21	failure to adequately publish results in BOTH professional and popular forums.	Yes	there are more pressing issues at the moment	historical particularist	No	Line must be drawn somewhere. Once you justify one you justify all.		No	They are unproductive.

Appendix A - Pilot Study Results

	Q 10	Q 11	Q 11.a	Q 12	Q 13	Q 13.a	Q 14	Q 15	Q 15.a
22	lack of funding in some project	No		historical	Yes	if you have too many equal items (coins, jars, china) Will help to offset cost to the		Yes	
23	elitism and failure to capitalize on public interest	No	too much theory can lead to	Historical	No	No, too hard to define a boundary		Yes	
24	The public thinks "salvage" first and "archaeology" second	No		historical	No	No, once sold they are no longer the property of the people as a whole.	RMS Titanic Inc (on the web)	No	Would not go because it would be a failure
25	lack of funding	No		anthropological	No		Atocha; Debraak	No	
26	excavation for the sake of excavation	Yes	Ask just about anyone in the field of maritme archaeology	historical particularism	Yes	Questoin really too hard to answer		Yes	Absolutely.
27	failure to be practical and work with the private sector	No	Ask anyone in the field about theory, and the response is likely to be: "what theory?" A number of the projects I have read about have little		Yes	to museums or private collections as long as they are not horded		Yes	
28	communication to the masses	Yes		Historical	Yes	but there will always be trade in antiquities	Ohio Journal of Science, Vol 95 March 1995; see notes for others	Yes	Has done so in the past, would do it again
29	not part of mainstream archaeology	Yes	too much focus on adventure and	historical	Yes			Yes	Hosting on next year
30	collecting objects and then locking them away from viewing	No	see above, not part of the mainstream	anthropological	Yes	sale will generate interest which will generate more funding		Yes	
31	professional archaeology is not bothering to provide information to the public and failure to convey its importance	Yes		historial, but more anthropological as time goes o	Yes	Once part of a site is sold it no longer becomes available for study	I know of none	Yes	yes, but must be done in a rational way

Appendix A - Pilot Study Results

	Q 10	Q 11	Q 11.a	Q 12	Q 13	Q 13.a	Q 14	Q 15	Q 15.a
32	lack of effective working relationship between archaeologists, administrators, divers, military. Also lack of funding	No	focus too much on ship construction details and fail to look	historical	Yes	if you have 10,000 amphora, all the same, save 100 and sell the rest	Mel Fisher's Atocha; Frank Goddio San Agustin	Yes	
33	lack of funding and failure to work with the commercial world	Yes		historial	Yes	If archaeology is done properly, then why not. Thousands of rottoing away artifacts could be circul		Yes	
34		No		historical	Yes	Practically speaking, sale of duplicate items could generate more funding for research		Yes	

APPENDIX B: PHASE II SURVEY QUESTIONNAIRE

ISSUES IN MARITIME ARCHAEOLOGY QUESTIONNAIRE

Aims of the Survey

The aim of the survey is to gather data concerning present attitudes toward several issues currently facing maritime archaeology. These issues include salvage, cultural resource management, public perception of maritime archaeologists, theoretical approaches, and the role of sport divers in underwater archaeology. The questionnaire is being sent to professional archaeologists, sport divers, salvors, and students. This data will be published in a Ph.D. dissertation being written at the University of St. Andrews by Glenn P. Darrington, M.A., R.P.A.

Confidentiality Guarantee

YOUR RESPONSES WILL BE KEPT ABSOLUTELY CONFIDENTIAL. This is a blind study where individuals and institutions are not identified.

SECTION A: PERSONAL INFORMATION

Question A1:
Which of the following do you see yourself as? (Select only **ONE** option)

- ☐ A) professional archaeologist and/or maritime historian
- ☐ B) student
- ☐ C) sport diver
- ☐ D) amateur archaeologist (no formal degree or accreditation)
- ☐ E) marine salvage professional
- ☐ F) treasure salvor
- G) Other (please specify) _____

Question A2:

a) What is your Nationality: _____
b) In what country do you currently live: _____
c) In what country or region do you do most of your work: _____
d) In what country/countries were you educated: _____
_____

Question A3:
What is your age? _____

Question A4:
What is your level of education?

- ☐ A) doctoral degree or higher
- ☐ B) master's/ graduate degree
- ☐ C) undergraduate degree/trade school
- ☐ D) high school/secondary education
- ☐ E) less than high school/ secondary Education

SECTION B: HISTORIC PRESERVATION LEGISLATION

Question B1:
Does the country where you work or dive have historic preservation legislation that protects shipwreck sites?

Yes ☐ No ☐ Not sure ☐

Question B2:
Do you feel that historic preservation legislation concerning shipwrecks in this country is:

- ☐ A) too strict
- ☐ B) about right
- ☐ C) too lax
- ☐ D) non-existent

Question B3:
Have you read the proposed UNESCO Draft Convention on the Protection of Underwater Cultural Heritage?

Yes ☐ No ☐

Question B4:
If yes, what effect do you think it will have on the activities of sport divers?

_____

_____

_____

_____

_____

_____

_____

Question B5:
When it comes to the protection of submerged sites, do you feel that professional archaeologists/cultural resource managers tend to be:

- ☐ A) extremely over-protective
- ☐ B) over-protective
- ☐ C) protective
- ☐ D) under-protective
- ☐ E) not protective at all

SECTION C: SPORT DIVING

Question C1:
What is your diving qualification and how many years have you been SCUBA diving?

_____

Question C2:
Have you EVER recovered a "dive trophy" from an historic shipwreck (historic shipwreck being defined as being older than 50 years of age)?

Yes ☐ No ☐

Question C3:
If yes, how long ago was the LAST time you recovered a "dive trophy"?

_____

THE FOLLOWING SECTION IS MAINLY INTENDED FOR PROFESSIONAL ARCHAEOLOGISTS, AMATEUR ARCHAEOLOGISTS, AND STUDENTS OF ARCHAEOLOGY. IF YOU DID NOT SELECT ONE OF THESE THREE CATEGORIES IN QUESTION A1, YOU MAY CHOOSE TO SKIP ANY OR ALL OF THE REMAINING QUESTIONS.

SECTION D: ARCHAEOLOGICAL ISSUES

Question D1:
What do you feel is the current role of archaeological/anthropological theory in the field of maritime archaeology?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Question D2:
In the region where you work or study, do maritime archaeologists tend to be more historical particularist or more anthropological in their approach?

- ☐ A) historical particularist
- ☐ B) anthropological
- ☐ C) not sure

Question D3:
What theoretical approach do YOU feel is best suited to the study of shipwreck sites?

- ☐ A) historical particularist
- ☐ B) anthropological
- ☐ C) not sure
- ☐ D) archaeology does not require any theoretical approach

Question D4:
Do you feel the sale of antiquities is acceptable?

- ☐ A) always
- ☐ B) sometimes
- ☐ C) never

Question D5:
Please explain the reasons for your answer to question D4.

_____

_____

_____

_____

_____

Question D6:
What, in your opinion, has been the greatest failure of maritime archaeology as a professional discipline?

_____

_____

_____

Question D7:
Do you feel that professional archaeologists and professional salvors can:

- ☐ A) never work together because of conflicting principles
- ☐ B) work together, but only in a few cases under special circumstances
- ☐ C) work together in many cases and should do so more often

Question D8:
Do you feel that current health and safety diving regulations are:

- ☐ helping many archaeologists to work underwater
- ☐ having no effect on how many archaeologists are working underwater
- ☐ hindering many archaeologists from working underwater
- ☐ not sure

Question D9:
Do you feel that in modern maritime archaeology there is:

- ☐ too much emphasis on technology
- ☐ the right amount of emphasis on technology
- ☐ too little emphasis on technology
- ☐ not sure

Question D10:
What in your opinion has been one of the most significant developments in maritime archaeology since the Cape Gelidonya excavation in 1960?
(can cover, for example, technology, scholarship, legislation, etc.)

Question D11:
Generally, do you feel that academic institutions adequately prepare graduate level students for working in the field of maritime archaeology?

- ☐ A) yes
- ☐ B) yes, but it could be improved
- ☐ C) no
- ☐ D) not sure

Question D12:
If you answered B or C, please explain the problem and how it might be improved.

Question D13:
Whom do you consider to be the 5 most influential people in the development of maritime archaeology? (Please list in order of importance with **1** being the **MOST** important)

1) _____

2) _____

3) _____

4) _____

5) _____

Question D14:
Do you know of any published historical/archaeological research which was conducted or funded by a professional salvage company?

Yes ☐ No ☐

Question D15:
If yes, can you provide one bibliographical reference?

Author:_____ Year:_____

Title:_____ Publisher:_____

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE. YOUR CO-OPERATION IS VERY MUCH APPRECIATED.

PLEASE RETURN THE SURVEY IN THE ENCLOSED SELF-ADDRESSED ENVELOPE PROVIDED. A POSTAL VOUCHER HAS BEEN INCLUDED AND MAY BE REDEEMED AT YOUR LOCAL POSTAL OFFICE.

If the enclosed envelope has been lost, the questionnaire should be mailed to:

Glenn P. Darrington
Grange Flat, Grange House, Grange Road
St. Andrews, Fife
KY16 8LN
SCOTLAND

APPENDIX C: PHASE II SURVEY RESULTS – RAW DATA

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QA1	QA1g	QA2a	QA2b	QA2c	QA2d1	QA2d2	QA3	QA4	QB1	QB2	QB3	QB4a	QB4b	QB5
1	A		British	UK	UK	UK		57	A	Y	B	Y	A		C
2	D		British	UK	UK	UK		38	D	Y	A	N			B
3	A		British	UK	UK	UK		43	B	Y	C	Y	A	will restrict souvenier hunting	B
4	C		British	UK	UK	UK		26	B	Y	B	N			C
5	A		British	UK	UK	UK		34	B	Y	B	Y	A	99% of wrecks are within territorial waters	C
6	A		British	UK	UK	UK		40	C	Y	B	N			C
7	A		British	UK	UK	UK	UK	28	A	Y	B	Y	A	but will effect public's perception of archaeology	B
8	A		British	UK	UK	UK		37	B	Y	C	Y	A	little unless properly implimented	B
9	A		British	UK	UK	UK		33	A	Y		Y	A	negligible in terms of restriction	C
10	G	contractor	British	UK	UK	UK		33	C	Y	B	Y	A	curent rules are ignored so new ones won't make a difference	C
11	A		Irish	UK	UK	UK		49	C	Y	C	Y	A	very little	C
12	B		British	UK	UK	UK		23	B	Y		Y	A	hope that it would not stop sport divers from visiting sites	C
13	A		British	UK	UK	UK		43	B	Y	C	Y	B	cut down damage & involve sport divers in u/A	A
14	A		American	UK	USA - east coast	USA	UK	32	B	Y	C	N			C
15	B		Norwegian	UK	Norway	Norway	UK	24	B	Y	B	N			C
16	A		British	UK	UK	UK		46	B	Y	B	Y	A	most sport divers do not dive outside of terretorial waters	C
17	A		Israeli	Israel	Israel	Israel	Greece, USA	63	A	Y	B	Y	A	depends on individual countries, in Israel no effect	C
18	A		British	UK	UK	UK		23	B	Y	C	Y	A	any change will be gradual	B
19	G	marine conservator	British	UK	UK	UK		38	A	Y		N			D

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QA1	QA1g	QA2a	QA2b	QA2c	QA2d1	QA2d2	QA3	QA4	QB1	QB2	QB3	QB4a	QB4b	QB5
20	D		American	USA	USA - east coast	USA		43	C	Y	B	Y	C	could limit access by sportdivers, will widen the rift between archaeologists and sprot divers.	C
21	A		American	USA	Carribean	France	USA	56	A	Y	C	Y	A	will have little or no adverse effect	C
22	A		Portuguese	USA	Portugal	Portugal		38	B	Y	B	Y	B	will get sport divers involved	C
23	G	marine conservator	Australian	Australia	Australia	Australia		51	A	Y	B	Y	B	it is what is needed for effective heritage management	C
24	A		American	USA	USA	USA		38	C	Y	B	Y	C	over regulation will cause a reduction of sport diving	A
25	A		Australian	Australia	Australia	Australia		52	A	Y	B	Y	A		C
26	A		British	UK	UK	UK		60	A	Y	C	Y	E	will have either a positive effect or neg. depending on implimentation	C
27	E		Canadian	Canada	Canada	Canada		49	C	Y	A	Y	A	unenforceable	A
28	D		Swedish	Sweden	Sweden	Sweden		40	D	Y	B	N			D
29	B		British	UK	UK	UK		23	B	Y	C	Y	B	will encourage constructive use of the underwater envirornment while protecing heritage	C
30	D		British	UK	UK	UK		32	B	Y	C	Y	A	will not prevent recreational diving	C
31	A		American	USA	USA - east coast	USA	Israel	30	B	Y	C	Y	B	hope the legis will help to educate the sport diver	C
32	A		American	USA	USA - east coast	USA		50	A	Y	B	Y	A	none on sportdivers, collectors will go underground	C
33	A		American	USA	USA - east coast	USA		49	C	Y	C	N			C

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QA1	QA1g	QA2a	QA2b	QA2c	QA2d1	QA2d2	QA3	QA4	QB1	QB2	QB3	QB4a	QB4b	QB5
34	A		Australian	Australia	Australia	UK		57	B	Y	B	Y	A	educational influence on sport divers	C
35	A		American	USA	Carribean	USA		50	A	Y	C	Y	B	sport diving will not be prevented in any way	C
36	B		American	UK	USA	USA	UK	27	B	Y	C	N			C
37	F		American	USA	USA - east coast	USA		46	D	Y	B	Y	C	will make criminals out of sport divers	A
38	B		Danish	Denmark	Denmark	Denmark	UK	27	B	Y	B	Y	A	not sure it will effect sport divers at all, likes the wording though	C
39	A		British	UK	UK	UK		44	B	Y	B	Y	B	will raise awareness and moderate extreme behavior	B
40	A		American	Canada	Canada	USA		42	B	Y	B	Y	A	none	B
41	D	volunteer archaeologist	American	USA	USA	USA	Jamaica	32	B	Y	C	N			C
42	F		American	USA	USA - east coast	USA		38	D	Y	A	Y	C	will make criminals out of honest people	E
43	A		British	UK	UK	UK		44	C	Y	C	N			D
44	A		Italian	Italy	Italy	Italy		30	A	Y	B	N			C
45	A		American	USA	USA	USA		42	A	Y	B	N			A
46	A		Australian	Australia	Australia	Australia		31	B	Y	B	Y	A	will/should not affect sport divers for purposes of recreation, tourism, ejoyment, or sport	C
47	A		Australian	Australia	Australia	Australia	New Zealand	35	C	Y	B	Y	B	will curtail the collect of "goodies by sportdivers	
48	G	conservator	Australian	Australia	Australia	Australia		33	C	Y	B	Y	A	no effect because there will be no enforcement	C

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QA1	QA1g	QA2a	QA2b	QA2c	QA2d1	QA2d2	QA3	QA4	QB1	QB2	QB3	QB4a	QB4b	QB5
49	A		Spanish	Spain	Spain	Spain		41	B	Y	B	N			C
50	A		British	Denmark	Denmark	Denmark		32	A	Y	C	Y	B	will encourage participation in monitoring	C
51	D		British	UK	UK	UK		67	D	Y	D				C
52	A		American	USA	USA	USA		47	A	Y	C	Y	A	zero impact	C
53	C		American	USA	USA	USA		50	B	Y	B	Y	A		C
54	D		British	UK	UK	UK		41	B	Y	D	Y	A	divers will continue to dive whereever they want until physically stopped	A
55	A		American	USA	USA	USA	France	45	A	Y	C	N			D
56	G	Park Warden - Fathom Five	Canadian	Canada	Canada	Canada		52	C	Y	C	N			C
57	A		German	Germany	Germany	Germany		49	A	Y	B	Y	A		E
58	F		American	USA	USA	USA		74	C	Y	A	N			B
59	G	conservator	Australian	Australia	Indian Ocean	UK		48	D	Y	B	N			D
60	A		Danish	Denmark	Denmark	Denmark	Norway	37	B	Y	B	N			D
61	A		American	USA	USA	USA	UK	24	B	Y	B	N			C
62	E		American	USA	USA	USA		74	B	Y	A	Y	C	will kill the dreams of sport divers	A
63	C		Italian	Austria	Europe	Italy		34	B	Y	A	N			A
64	A		Canadian	Canada	Canada	Canada	UK	26	B	Y	C	N			C
65	A		Australian	Australia	Australia	Australia		40	A						
66	A		South African	RSA	RSA	RSA		34	B	Y	B	Y	A	if they are not doing anything bad, then it won't affect them at all	B

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QA1	QA1g	QA2a	QA2b	QA2c	QA2d1	QA2d2	QA3	QA4	QB1	QB2	QB3	QB4a	QB4b	QB5
67	A		American	USA	USA - east coast	USA		44	B	Y	C	N			C
68	D		American	USA	USA	USA		34	C	Y	C	N			C
69	F		American	USA	Carribean	USA		58	B	Y	A	Y	C	Frustration	A
70	E		American	USA	Key West	USA		45	C	Y	A	Y	C	It will prevent them from enjoying shipwrecks	A
71	A		American	USA	USA	USA		30	B	Y	C	N			C
72	B		American	USA	USA	USA		32	B	Y	C	N			C
73	B		Belgian	USA	USA	Belgium	USA	27	B	N	D	Y	A	depends ...	C
74	B		American	USA	USA	USA	Germany	28	C	Y	C	N			C
75	B		American	USA	USA	USA		30	C	Y	C	N			C
76	D		French	Portugal	Portugal	France		38	A	Y	D	N			A
77	A		American	USA	Bermuda/USA	USA		60	A	Y	C	Y	A	Little if any	C
78	A		American	USA	USA	USA	UK	55	A	Y	C	Y	A	virtually no effect on sport divers since it applies mostly to deepwater wrecks	B
79	A		Irish	Australia	Australia	England	Australia	40	B	Y	B	Y	A	will have little or no effect, will help in those regions with little or no legal protection	C
80	D		South African	RSA	RSA	RSA		43	C	Y	B	N			A
81	D		South African	RSA	RSA	RSA		38	B	Y	B	N			B

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QA1	QA1g	QA2a	QA2b	QA2c	QA2d1	QA2d2	QA3	QA4	QB1	QB2	QB3	QB4a	QB4b	QB5
82	A		American	USA	USA	USA	UK	58	A	Y	C	Y	A	little unless there is enforcement	C
83	B		Irish	Ireland	Ireland	Ireland	UK	41	B	Y	B	N			B
84	B		Swedish	Sweden	Sweden	Sweden		31	B	Y	B	N			D
85	A		Dutch	RSA	RSA	Netherlands		39	A	Y	B	Y	D	sport divers can not embark on ad hoc projects unless they are run by a proper organization	C
86	A		American	Denmark	Europe	USA	UK	38	A	Y	B	N			B
87	A		Australian	Australia	Australia	Australia		40	B	Y	B	Y	A	no real effect as enforcemtn is up to individual countries	B
88	A		Australian	Australia	Australia	Australia		46	B	Y	B	Y	A	little effect because there is little sport diving in international waters	D
89	A		American	USA	East Mediterrranean	USA		30	B	Y	C	Y	A	Difficult to say, especially since we do not know all the loopholes. If there are any sport/treasure divers will certainly exploit them.	C
90	B		American	USA	USA	USA		29	C	Y	B	N			B
91	B		American	USA	USA	USA		23	C	Y	C	N			C
92	A		American	USA	Turkey	USA		46	A	Y	C	N			D
93	A		Australian	Australia	Australia	Australia		42	A	Y	C	Y	A	As long as it does not stop sport diving.	B

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QC1	QC1a	QC2	QC3	QD1a*	QD1b	QD2	QD3	QD4	QD5*	QD6*	QD7	QD8	QD9	QD10*	QD11
1	BSAC 3rd class		N		A	the study of ethnicity and assemblage theory should be encouraged more	A	C	B	A	A	B	C	D	A	B
2	BSAC 3rd class	25	Y	15	B	hands on experience is the best	C	A	B	B	B	C	B	C	B	A
3							C	C	B	C	C	B	B	B	E	C
4	BSAC Sport diver	2	N		C	should stess search, recording, recovery, and conservation	C	C	B	B	B	C	C	D		D
5	BSAC 3rd class	19	Y	10	A	under. arch is way behind terrestrial, we still need to understand our sorce material first	A	E	B	D	D	B	A	A	C	C
6	BSAC Advanced	25	Y	5	D	basic assessment of arch potenial	C	E	C		E	C	C	D	D	D
7	CMAS 3 star + commercial	14	Y	5	A	need to develope sign. testing, work on comprehensive database construct	A		C	E	E	B	B	A	F	C
8	BSAC 2nd class	15	Y	15	B	waste of effort when more needs to be done about basic education	A	D	B	C	F	C	B	B	G	C
9	BSAC Advanced	14			A	in the UK it is very poorly developed	A	B	C	E	C	B	A	A	H	C
10	HSE Part 4	15	Y	1					B	B	B	C	B	B	I	B
11					E	terrestrial theory is continued into the maritime	B	E	B	F	B	B	A	B	B	B
12	PADI rescue	7	N		F	not sure, but theory should be a balance of history and anthropology	D	E	B	A	G	C	C	B	F	A
13	CMAS 3 star	14	Y	0	E		A	B	B	G	G	C	A	C	F	C
14							A	C	C	H	E	A			F	A
15	PADI advanced	2	N		A	Is mostly rescue archaeology	A	C	B	C	H	B	C	B	D	B
16	HSE Part 2, advanced instructor	30	Y	25	B	fairly low priority	A	E			D		A	B	C	C
17	Dive instructor -	44	Y	1			C	D	B	C	C	C	B	B	J	C
18	SAA Dive Leader	9	Y	2	F		A	C	D		E	A	C	A	K	C
19	SAA Club Diver	3	Y	2												

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QC1	QC1a	QC2	QC3	QD1a*	QD1b	QD2	QD3	QD4	QD5*	QD6*	QD7	QD8	QD9	QD10*	QD11
20	PADI	25	Y	6	F	to help fill the "window" of how our forebears lived	A	D	B	B	A	C	D	B	F	B
21	Advanced open water	29	N		A	need reassessment of site investigation techniques and devel. of new methods, should be more scientific	A	B	B	I	I	B	A	B	G	A
22	CMAS 1star	8	Y	17	A	need to gather more data	B	B	B	I	C	A	B	B	L	C
23	Commercial Diver 1	20	N				A	B	B	J	H	C	B	B	B	C
24	Advanced open water	12	N		G	still need to utilize upper level theory	B	B	B	B	G	C	C	A	M	A
25	senior diver	20	Y	18	H	theory validates arhcaeology, making it relevant and accessible	A	E	B		J	B	C	A		B
26	HSE Part 4	41	Y	40	I	theory should not drive the archaeology, but should be based on the evidence (deductive, not inductive)	A	E	C	K	J	A	C	A	N	B
27	Trimix Advanced	33	Y	10			A	C	B	B	A	C	D	C	O	D
28	CMAS Instructor	22	Y		E	fundamental because it is an extendion of land arch.	B	C	B	J		B	A	B	F	D
29	BSAC sport diver	3	N		A	20 years behind the mainstream	A	E	C	E	C	A	C		I	C
30	BSAC advanced	16	N				C	C	B	C	J	C	C	B	J	D
31	NAUI Instructor	13	N		A	theory still in its infancy, too much emphasis on ship construction	A	B	B	L	C	B	B	B	G	B
32	NAUI, PADI	30	N		J	Central to the study of maritime archaeology	D	E	C	H	K	B	D	D	P	B
33	NAUI/PADI	42	N		K	provide rational as to how the resource is finite, help to set up preserves	A	B	B	A	D		C	B	B	C

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QC1	QC1a	QC2	QC3	QD1a*	QD1b	QD2	QD3	QD4	QD5*	QD6*	QD7	QD8	QD9	QD10*	QD11
34	ADAS Level 2	40	N				A	A	C	K	C	A	C	B	B	B
35	NAUI Instructor	26	N		A	non-existent, not attempts to put artifacts in a larger cultural context	A	B	C	E	C	A	B	A	F	C
36	MSDT Instructor	16	N		L	theory is a tool used to construct a picture of the past	B	E	B	H	C	C	D	C	K	B
37	Open water	30	Y	0	H	need theory to define what is arch. public benefits	A	D	B	C	G	C	B	B	B	A
38	HSE Part 4 Commercial	4	N		A	too little, just teach typology	B	B	B	I	J	C	C	B	B	C
39	HSE part 3	20	N		H	provide framework for high quality research, development of research themes	A	B	B	I	C	B	A	B	Q	C
40	NAUI	21	N		A	a critical part which is underdeveloped	A	B	B	C	A	B	B	B	E	B
41	NAUI Master Diver	10	N				A	C	B	I	C	A	D	D	F	B
42	PADI	20	N		A	should be to create and maintain principles	D	E	B	C	G	C	A	C	J	C
43	Pro Diver 3		N		A	not there is enough data	A	C	B	B	L	C	B	C	R	C
44	CMAS 3 star	10	N				A	B	C	H	E	A	B	D	J	C
45					A	history of ships is a major focus, but no anthropology	A	B	B	C	L	C	D	D		B
46	AS2	11	N		A	today arch. is mostly dealing with ethical issues, UNESCO, Titanic	C	C	B	M	B	B	A	B	B	B
47	Commercial Air	20	N		A	not wide spread, need more behavioral aspects	A	B	C	E	A	B	C	B	S	B
48	Open Water	15	N						B	A		A	A	B	T	

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QC1	QC1a	QC2	QC3	QD1a*	QD1b	QD2	QD3	QD4	QD5*	QD6*	QD7	QD8	QD9	QD10*	QD11
49	CMAS 3 Star	20	N		J	Theory should direct the mehtod of the excavation	A	A	B	A	C	B		B	T	B
50	MSE Part 3	12	N		A	gap between artifacts and science. Middle Range Theory is inadequate to explain "hard science" approach to the archaeological record	A	B	C	H	H	A		C	J	C
51	North Sea Diver	30	Y	5	J	of considerable importance	A	A	B			C	B	B	J	B
52	NAUI Scientific diving	20	N		A	it is important but current survey work lacks a strong theoretical foundation	A	E	C	E	E	A	C	B	U	B
53	PADI divemaster	8	N													
54	PADI	26	Y	0	K	archaeologists should educate the masses	A	B	A	B	G	C	C	A	I	C
55	Open Water	15	N		J	theory helps to maintain a high level of professionalism and consistency	B	B	C	E	J	A	A	A	P	B
56	Naui Basic	25	N													
57	non-diver		N		B	indifferent	A	A	C	E	M	A	D	A	B	C
58	certif. scuba	40	N				A	A	B		G	C	A	C		B
59	Part 2	33	Y	20+			D	E	B	D	A	B	A	B	P	B
60	Commercial Diver	17	N		M	very, very limited, maritime arch primarily deals with ships and ship technology, so no need	A	C	B	A		B	C	A	B	C
61	NAUI Open Water	15	N		F	more interested in the technical/scientific aspects of marine archaeolog	A	B	B	B	G	B	A	B	F	B
62	Pro 500	48	Y	0	F	see sheet										
63	PADI	18	Y	1												
64	Basic	6	N		F		C	A	C	H	D	C	D	C	J	C
65	Commercial Diver	22	N		A	1) emergent 2) essential	A	B	C	K	J	A	A	A	V	B
66	Part 3 Science diver	3	N				A	A	B	A	N	B	B	D	W	C

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QC1	QC1a	QC2	QC3	QD1a*	QD1b	QD2	QD3	QD4	QD5*	QD6*	QD7	QD8	QD9	QD10*	QD11
67	PADI Advanced Open Water	27	Y	1	F	difficult to assess across the board, depends on the project and those involved	A	C	B	B	A	B	D	B	J	C
68	Rescue Diver	12	N				A	C	B	C	C	C	C	B		D
69	Open Water Diver	40	Y	12	F	interpret answer as a "not sure"			B	C	A	C	D	A	X	D
70	Commercial Diver	29	N		F	in preserving history of what we discover underwater	D	A	B	C	L	C	C	C	X	C
71	Certified Diver	12	N		N	theory should provide insights into maritime cultural behavior in both a regional and cross-cultural sense.	A	B	C	N	O	B	D	A	V	B
72	none		N		H	provides both practical and theoretical boundaries and is a system to review and improve the field	A	B	B	C	C	B	A	C	Y	B
73	CMAS 3 star	3	N				A	E	B			B	A	D		B
74	Open Water	1	N		F	to prepare students for the field - interpreted as a "not sure" answer	B	C	C	H	G	C	A	A	C	D
75	PADI	6	N		A	it defines the profession, U/A needs to have a more defined body of theory to raise it to the level of terrestrial archaeology.	C	A	C	E	D	A	B	C	C	A
76	PADI	12	N				C	C	B	F			C	C		
77	NAUI -Advanced Openwater		N		A	seriously neglected, few efforts at research design ** use these comments	B	E	C	O	P	A	D	D	J	B
78	PADI - Instructor	31	N		J	theory should have a primary role in determining which shites are excavated, protected and research desgins should be based on soundthoery and hypothesis	A	A	B	D	Q	C	B	B	G	C
79	ADAS Part 2	24	N		A	in most situations theory comes a poor second to management, very few wrecks examined using good theory	A	B	C	H	J	A	D	D	Z	C
80	Class III Scientific Diver	15	Y	4	F	archaeologists should not be aligned with the government but should employ universally approved standards	A	E	A	J	B	C	A	B	AA	C
81	sport diver	15	Y	8					B	C	L	B	C	C	F	D

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QC1	QC1a	QC2	QC3	QD1a*	QD1b	QD2	QD3	QD4	QD5*	QD6*	QD7	QD8	QD9	QD10*	QD11
82	NAUI	5	N		O	to examine approaches and anticipate possibilties in the field, technology remains a	B	B	C	E	C	A	A	B	D	A
83	CMAS 3 star	8	N		A	many pay lip service to the role of theory, still too obsesses with the individual wreck site, NAS isn't teaching any theory	C	C	B	C	C	B	C	D	B	C
84			N				C	C	B	M	C	A	D	D		D
85	HSE III	27	N		A	there is a need to develop theory further, we must move away from the particularist approach.	A	E	B	C	R	B	A	A	B	B
86	PADI Divemaster		N		A	because the field is still new, there is not enough comparative data to develope useful theory specific to maritime subjects	D	E	B	P	E	B	C	A	H	B
87	PADI	14	N		A	role remains basic but over the last five years Gould, Sousa, McCarthy seem to be expanding it. Not much change since Muckelroy	A	C	B		A	B	C	A	B	B
88	Level 2 Ocumaptional Diver	20	N		A	relatively small, Programs are primarily management based and the focus site survival. Little University involvement	D	E	B	P	E	B	A	A	O	C
89	PADI Dive Master, U.S. Navy Deep Sea Diver	12	N		A	I have yet to hear or to read of any theory being tested on an actual site from beginning to end. Perhaps the "time-capsule" nature of shipwrecks does not lend itself to theory as easily as terrestrial sites do.	B	B	B	Q	C	B	A	B	J	B
90	PADI Dive Master	10	N		M	It barely applies due to the nature of shipwrecks. At this time, there has not been engough sites of a given period excavated that would make a comparative study fruitful.	A	A	B	C	G	B	A	C	BB	C
91	NAUI Master Diver	4	N		M	nautical/maritime archaeology is a bit of a special case in archaeology. Because of the nature of the artifacts recovered theory does not apply.	A	A	B	C	A	A	B	B	CC	B
92	open water diver	25	N		H	Theory gives archaeologists clear guidelines for the excavation and interpretation of sites.	D	E	C	E	A	A	A	C	C	B
93	NAUI Master Diver	25	N		A	It is becoming for widely recognized as maritime archaeology is taught in more archaeology programs	A	B	C	H	J	B	C	A	G	B

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QD12*	Q13_1	Q13_2	Q13_3	Q13_4	Q_13_5	QD14	QD15a	QD15y	QD15t	QD15p
1	A	Parker	Lamboglia	Bass	McGrail	Dumas	N				
2	B	Martin	Morris	Muckelroy	Rule	Dean	N				
3	C						N				
4							N				
5	B	Bass	Muckelroy	Throckmorton	Rule	Green	N				
6		Cederlund	Bass				N				
7	D	Throckmorton	Bass	McGrail	Steffy	Muckelroy	I	Bound, M		Nassau Project	
8	B	Bass	Cousteau	Muckelroy	Edgerton		N				
9	B	Tomaline	Yorke	Aberg	Marsden	Ferrari	Y	Rule, M.	1982	The Mary Rose: excavation and raising	Conway
10	B	Bass	Rule	Green	Stemm	Davies	N				
11	C						N				
12		Cousteau	Adams	du Plat Taylor	Dean		N				
13	B	Blundell	Martin	Cousteau	Ballard	Jessop	I	Jessop, Keith			
14		Bass	Throckmorton	Muckelroy	Delgado	Ballard	N				
15	B	Muckelroy	Bass	Crumlin-Pedersen	Cederlund	Christensen	N				
16	B						N				
17	F	Bass	Pomey	Gianfrotta	Linder	Jonshecoy	N				
18	B	Cousteau	Blundell	Bass	Muckelroy	Ballard	N				
19							N				

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QD12*	Q13_1	Q13_2	Q13_3	Q13_4	Q_13_5	QD14	QD15a	QD15y	QD15t	QD15p
20	G	Throckmorton	Chapelle	Bass	Marx	Steffy	N				
21		Bass	Dumas	Frost	Muckelroy	Flemming	Y	Mathers, Parker, and Copus	1990	Recovery of the Manila Galleon, NS de la Concepcion	Pacific Sea Resources
22	C	Bass	Steffy	Crumlin-Pedersen	Rieth	Gremer	I	L'Hour	1993		
23	B	Martin	Bass	Rule	Henderson		Y	Goddio	1989; 1994	Wreck of the Griffin; Wreck of the Marie Therese	Private
24	H	Muckelroy	Throckmorton	Bass	Green	Souza	Y	Souza, D.	1998	The Persistance of Sail in the Age of Steam, Underwater Archaeological Evidence from the Dry Tortugas	Plenum
25	B	Bass	Muckelroy	du Plat Taylor	Green	Gould	I	Mathewson			
26	B	Bass	du Plat Taylor	Crumlin-Pedersen	Pomey	Throckmorton	N				
27		Bass	Throckmorton	Marx	Fisher	Cousteau	N				
28		Cousteau	Ucelli	Bass	Ballard	Muckelroy	I	work on the Vasa?			
29	I	Muckelroy	Bass	McGrail	Crumlin-Pedersen	du Plat Taylor	N				
30		Bass	Throckmorton	Cousteau							
31	J	Bass	Throckmorton	Muckelroy	Steffy	Cousteau/Gagan	N				
32	B	Bass	Throckmorton	Green	Keith	Murphy	Y	Mathers	1993	Treasure of the Concepcion	APA Publications
33	B						I	Mathewson			

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QD12*	Q13_1	Q13_2	Q13_3	Q13_4	Q_13_5	QD14	QD15a	QD15y	QD15t	QD15p
34	I	Bass	Alverez	Martin			Y	Pacific Sea REsources	1987	Mavinans Pepcut	Pacific Sea REsources
35	J	Muckelroy	Luna	Grenier	Green	Lenihan	Y	Mathers	1990	Recovery of the Manila Galleon, NS de la Concepcion	Pacific Sea Resources
36	F	Bass	Martin	Muckelroy	Ballard	Throckmorton	N				
37							Y	Gaither, Cathline	1998	Florida East Coast Shipwreck Project	Mel Fisher Center, Inc.
38	B	Bass	Ellmers	Crumlin-Pedersen	Martin		N				
39	B	Murphy	McCarthy	Dean	Bass	Throckmorton	Y	Herdendorf, C.L.	1995	Science on a deep ocean shipwreck	Ohio Journal of Science, 95.1: 1-224
40	B	Muckelroy	Gould	Murphy	Martin	Delgado	Y	Kayle, allan	1990	Salvage of the Birkenhead	Johannesberg: Southern book Publisers
41	B	Cousteau	Bass	Throckmorton	Marx	Fisher	N				
42	G	Plato	Cousteau	Fisher	Mathewson		Y	Mathewson	1980	Search for the Nuestra Senora de Atocha	Seafarers Heritage library
43	B						I	Mathewson			
44	K	Bass	Muckelroy	Lamboglia	Crumlin-Pedersen	Frost	N				
45	G	Bass	Martin	Hamilton	Arnold	Smith	N				
46	J	Bass	Green	Franzen	Throckmorton	Frost	N				
47	L	Muckelroy	Bass	Green	McCarthy	Gould	N				
48											

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QD12*	Q13_1	Q13_2	Q13_3	Q13_4	Q_13_5	QD14	QD15a	QD15y	QD15t	QD15p
49	B										
50	B	Bass	Martin	Crumlin-Pedersen	Muckelroy	Sutcliffe	N				
51		Feninda	Dean	Lawrence							
52	B	Bass	Hamilton	Lenihan	McGrail	Throckmorton	I				
53											
54	G	McBride	Hildred	Adams	Underwood	Skelton	I	Mary Rose Team			
55	M	Bass	Throckmorton	Steffy	Muckelroy	Hamilton	N				
56											
57	K	Crumlin-Pedersen	McGrail	Steffy	Pomey	Westerdahl	Y	Goddio	1997	Die Sch.. der San Diego	Argon Verlog ..
58	B						Y	Mathewson	1986	Treasure of the Atocha	Pieces Books, NY
59	N						N				
60	O	Crumlin-Pedersen	Bass								
61	B	Bass	Frost	Muckelroy	Tailliez	Rule	I	Pacific Sea Resources			
62							Y	Weller, Robert	1998	The Dreamweaver	Fletcher Pub
63											
64	B	Bass	Throckmorton	Muckelroy	Martin	Pulak	N				
65	P	Gould	Muckelroy	Bass	Throckmorton	Green	N				
66	K	Bass	Green	Ballard			N				

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QD12*	Q13_1	Q13_2	Q13_3	Q13_4	Q_13_5	QD14	QD15a	QD15y	QD15t	QD15p
67	Q	Bass	Throckmorton	Katzev	Adams	Martin	Y	Moore, David	1997	Site Report: Historical and Archaeological Investigation of the Henrietta Marie	Mel Fisher Maritime Heritage
68		Bass	Throckmorton	Ballard	Marx		N				
69							I	Chadour, Gianno, Fleckker	1991 or 1992	Conception	Pacific Sea Resources
70	B	Mathewson	Bass	Moore							
71	L	Muckelroy	Bass	Beaucaire	McGrail	Cousteau	N				
72	R	Muckelroy	Bass	Throckmorton	Watts	Green	I	DePrizilo	1999	a student at ECU	
73		Bass	Muckelroy	Stenuit	Jamm???		N				
74		Ivor-Noel Hume	Bass	Muckelroy	Watts	Throckmorton	N				
75							N				
76											
77	L	Martin	Green	Muckelroy	Bass	Lenihan	N				
78	S	Bass	Muckelroy	Rule	Taylor	Throckmorton	I	Moore, David	1995	A Slave Ship Speaks - Henrietta Marie	Mel Fisher Soc???
79	E	Bass	Muckelroy	Gould	Green	Taylor	Y	Goddio, Jay E.	1988	18th Century Relics of the Griffin Shipwreck	Makati-Metro Manila, Philipies
80	F	Ballard					I		1996	Stalin's Silver	
81		Bass	Throckmorton	Rule	Ballard		N				

*See analysis sheet for breakdown of responses by code.

Appendix C: Phase II Survey Results - Raw Data

RECNUM	QD12*	Q13_1	Q13_2	Q13_3	Q13_4	Q_13_5	QD14	QD15a	QD15y	QD15t	QD15p
82		Bass	Cousteau	Muckelroy	Martin	McCann	N				
83	I						I	McElugue and others	1999		in IJNA
84		Bass					I	Sjorstrand Sten	1997	The Xanade wreck ceramics	
85	K		Goggin	Gould	Muckelroy	Bass	Y	Kayle, Allan	1990	Salvage of teh Birkenhead	Southern Book
86	T	Bass	Crulmin-Pedersen	Pomey	Steffy	Martin	N				
87	J	Muckelroy	Bass	Gould	Green		I	Ball	1995	The Diana Adventure	
88	S	Muckelroy	Bass	Green	Throckmorton		N				
89	A	Bass	Throckmorton	Watts	Marsden	Green	I				
90	Q	Cousteau	Bass	Nicoleysen	Ballard	Cussler	I	Duncan Mathewson			
91		Cousteau	Bass	Ballard	Benchley	Hocker	I	Mathewson			
92	U	Bass	Throckmorton	Steffy	Peterson	Franzen	N				
93	P	Bass	Green	Martin	Grenier	Cederlund	I		1980s	Nuestra Senora de la Conception	Saipan, Micronesia

*See analysis sheet for breakdown of responses by code.

APPENDIX D: PHASE II SURVEY RESULTS - ANALYSIS

APPENDIX D: PHASE II SURVEY RESULTS - ANALYSIS

Total Number of Surveys Distributed: 208
Total Number of Surveys Returned: 93
Response Rate: 44.7%

QA1:

56.99%	A) professional archaeologist and/or maritime historian (55)
13.98%	B) student (13)
3.23%	C) sport diver (3)
11.83%	D) amateur archaeologist (11)
3.23%	E) marine salvage professional (3)
4.30%	F) treasure salvor (4)
6.45%	G) other (marine conservators (4), contractor (1), park warden (1))

Total: 93

QA2:

(A) Nationality:

38.71%	American (36)	3.23%	Irish (3)
11.83%	Australian (11)	1.08%	Israeli (1)
1.08%	Belgian (1)	2.15%	Italian (2)
24.73%	British (23)	1.08%	Norwegian (1)
3.23%	Canadian (3)	1.08%	Portuguese (1)
2.15%	Danish (2)	3.23%	South African (3)
1.08%	Dutch (1)	1.08%	Spanish (1)
1.08%	French (1)	2.15%	Swedish (2)
1.08%	German (1)	Total: 93	

(B) Current Country of Residence:

12.90%	Australia (12)	4.30%	Republic of South Africa - RSA (4)
1.08%	Austria (1)		
4.30%	Canada (4)	1.08%	Spain (1)
4.30%	Denmark (4)	2.15%	Sweden (2)
1.08%	Germany (1)	27.96%	United Kingdom-UK (26)
1.08%	Ireland (1)		
1.08%	Israel (1)	36.56%	United States of America-USA (34)
1.08%	Italy (1)		
1.08%	Portugal (1)	Total: 93	

QA2 (cont.):

(C) Region or Country of Work:

11.83%	Australia (11)	1.08%	Italy (1)
1.08%	Bermuda (1)	1.08%	Key West (1)
4.30%	Canada (4)	1.08%	Norway (1)
3.23%	Caribbean (3)	2.15%	Portugal (2)
3.23%	Denmark (3)	4.30%	RSA (4)
1.08%	Eastern Mediterranean (1)	1.08%	Spain (1)
2.15%	Europe (2)	2.15%	Sweden (2)
1.08%	Germany (1)	1.08%	Turkey (1)
1.08%	Indian Ocean (1)	24.73%	UK (23)
1.08%	Ireland (1)	21.51%	USA (20)
1.08%	Israel (1)	8.60%	USA-East Coast (8)
		Total: 93	

(D) Primary Country of Education:

9.68%	Australia (9)
1.08%	Belgium (1)
3.23%	Canada (3)
3.23%	Denmark (3)
2.15%	France (2)
1.08%	Germany (1)
1.08%	Ireland (1)
1.08%	Israel (1)
2.15%	Italy (2)
1.08%	Netherlands (1)
1.08%	Norway (1)
1.08%	Portugal (1)
3.23%	RSA (3)
1.08%	Spain (1)
2.15%	Sweden (2)
27.96%	UK (26)
37.63%	USA (35)
Total: 93	

Secondary Country of Education:

4.76%	Australia (1)
4.76%	France (1)
4.76%	Germany (1)
4.76%	Greece (1)
4.76%	Israel (1)
4.76%	Jamaica (1)
4.76%	New Zealand (1)
4.76%	Norway (1)
52.38%	UK (11)
9.52%	USA (2)
Total: 21	

QA3:

Mean (average) Age:	41 years
Median (middle record) Age:	40 years
Mode (most frequent) Age:	38 years
Minimum Age:	23 years
Maximum Age:	74 years

QA4:

27.96%	A) doctoral degree or higher (26)
45.16%	B) master's/ graduate degree (42)
20.43%	C) undergraduate degree/trade school (19)
6.45%	D) high school/secondary education (6)
0.00%	E) less than high school/ secondary education (0)
Total: 93	

QB1:

16	Countries included in the sample have historic preservation legislation that protects shipwreck sites.
1	Country (Belgium) included in the sample does not have historic preservation legislation that protects shipwreck sites
Total: 17	

QB2:

8.99%	A) too strict (8)
48.31%	B) about right* (43)
38.20%	C) too lax (34)
4.49%	D) non-existent (4)
Total: 89	

*(with the assumption that laws are being administered properly - some respondents indicated that there is a problem with effective implementation)

QB3:

59.34%	Have read the proposed UNESCO Draft Convention on the Protection of Underwater Cultural Heritage (54)
40.66%	Have not read the proposed UNESCO Draft Convention on the Protection of Underwater Cultural Heritage (37)
Total: 91	

QB4:

66.67%	A) Feel that the proposed UNESCO Convention will have no effect on the activities of sport divers (36)
16.67%	B) Feel that the proposed UNESCO Convention will have a positive effect on the activities of sport divers (9)
12.96%	C) Feel that the proposed UNESCO Convention will have a negative effect on the activities of sport divers (7)
1.85%	D) Feel that the proposed UNESCO Convention will move sport divers closer to archaeology and away from commercial salvage (1).

QB4 (cont.):

1.85%	E) Feel that the proposed UNESCO Convention will have both a both positive and negative effect on the activities of sport divers (1)

Total: 54

Of those who felt that the proposed UNESCO Convention would have no effect on the activities of sport divers, one of the most commonly cited reasons was that the Convention pertains to shipwrecks located in areas too deep to be reached by the common sports diver. There was also a common feeling that, just like existing national legislation, whether or not the Convention has an effect will largely be determined by how it will be enforced. Many are cynical that there will be any enforcement at all.

QB5:

13.19%	A) extremely over-protective (12)
17.58%	B) over-protective (16)
57.14%	C) protective (52)
9.89%	D) under-protective (9)
2.20%	E) not protective at all (2)

Total: 91

QC1, QC2, & QC3:

Because the number of sport divers who responded was low (3) the results for Section C, and in particular Question C3, were biased towards maritime archaeologists who as a whole have not and do not collect "dive trophies." To compensate for the lack of participation by the sport diving community and its effects on maritime heritage the results of research conducted by Ben Ferrari (1994) concerning this issue were used.

QD1:

42.86%	A) Theory in maritime archaeology is widely underdeveloped and under-used (30)
5.71%	B) Theory has very little practical application in archaeology and is therefore a low priority. Hands on experience is more important (4)
1.43%	C) Theory tends to be method driven (1)
1.43%	D) Theory represents the "basic assessment of archeological potential" (1)
4.29%	E) Basic terrestrial theory is being extended into the marine zone (3)
15.71%	F) Not sure exactly what theory is (11)
1.43%	G) Historical particularism is no longer a sufficient theoretical paradigm for maritime archaeology. An anthropological approach has only really been applied to the lower and middle ranges theory, so there is still a need to expand into the upper levels of general theory (1).
7.14%	H) The role of theory is to validate archaeological study, making it relevant and accessible. It should be used as a vehicle for improving the quality of research by providing clear guidelines for the excavation and interpretation of sites (5)
1.43%	I) Theory should not drive archaeology; instead theory should be based on the artifacts. Archaeological reasoning should be inductive not deductive (1)
7.14%	J) Theory should is central to the study of maritime archaeology (5).
2.86%	K) Theory should be used to justify the overall value of maritime archaeology to the public (2)
1.43%	L) Theory is a "tool" used to create a picture of the past (1)
4.29%	M) Theory has a very, limited use in maritime archaeology because it is a field which deals primarily with ships and ship technology which has very little need for theory (3)
1.43%	N) Theory provides insights into maritime cultural behavior (1)
1.43%	O) Theory is used to examine approaches and to anticipate possibilities during fieldwork. This, therefore, makes technology a catalyst (1)

Total: 70

These results clearly reflect the underdeveloped nature of theory in maritime archaeology (answer A) and a general lack of understanding concerning what archaeological theory actually is (answer F). Some of the responses, such as B, C, I, M, and O, may provide insight into the reasons why it is such a neglected area of research.

QD2:

63.10%	A) Historical particularist (53)
13.10%	B) Anthropological(11)
14.29%	C) Not sure (12)
9.52%	D) Both - respondent selected both A & B (8)
Total: 84	

These results re-affirm the predominance of the historical particularist paradigm in maritime archaeology. I should be noted that although it was not printed on the questionnaire, 7 respondents indicated that both historical particularism and anthropology were equally prevalent.

QD3:

15.66%	A) Historical particularist (13)
31.33%	B) Anthropological (26)
24.10%	C) Not sure (20)
4.82%	D) Archaeology does not require any theoretical approach (4)
24.10%	E) both - respondent selected both A & B (20)
Total: 83	

The number of respondents who selected answer C indicates that there is a substantial amount of uncertainty concerning what should be the theoretical basis of maritime archaeology. These results also suggest that although historical particularism is predominant (see results of QD2), it is felt by a margin of 2:1 that anthropology is the way forward. Again it should be noted that although it was not printed on the questionnaire, 19 respondents indicated that both historical particularism and anthropology should be equally prevalent.

QD4:

2.30%	A) Always (2)
67.82%	B) Sometimes (59)
28.74%	C) Never (25)
1.15%	D) Not sure (1)
Total: 87	

Given the sensitivity of this subject within the archaeological community it was surprising to see that twice as many respondents felt that it was acceptable to sell antiquities sometimes than those who felt that antiquities should never be sold. These results indicate that there is a substantial "middle ground" concerning this issue, one that is not reflected in the published literature.

QD5:

8.75%	A) Because you can not stop the sale of antiquities one must try to work within this reality (7)
12.50%	B) The sale of antiquities can help to fund further research (10)
22.50%	C) The sale of multiple copies of an artifact (such as coins or amphorae), or items with no special artistic or research value (such as shattered pieces of wood/ballast/glass slag), is acceptable and in some cases preferable to artifacts which are locked away in warehouses and forgotten (18)
3.74%	D) Because there are not enough repositories in the world to house all the items being recovered, the only option is to sell items. All items are not significant and if you tried to save everything the entire system would collapse (3)
13.75%	E) The sale of antiquities goes against the ethical standards and principles of archaeology. The archaeological record is a finite resource that is non-renewable and therefore must be protected, preserved, and studied. The sale of items justifies treasure hunting (11)
2.50%	F) The sale of antiquities is acceptable if the items in question are under threat of being damaged and the only way to save them is through their recovery and sale (2)
1.25%	G) Archaeologists who never publish and museum who have a history of selling off their collections are sometimes as bad as the treasure hunter (1)
11.25%	H) Cultural materials (artifacts) belong to society as a whole, therefore no single individual or entity should profit from their sale. This is an issue of both natural and cultural patrimony. Cultural materials represent an important part of a commonly shared cultural heritage (9)
6.25%	I) If an item is up for auction or on sale from a private collector, then a research institute should be allowed the option of buying it (5).
3.75%	J) If an item or artifact has been fully recorded then it is acceptable to sell it (3)
3.75%	K) If a collection of artifacts from a shared context is broken up it loses its integrity and heritage suffers as a result (3).
1.25%	L) It is never acceptable to sell artifacts recovered from an archaeological site, but it the items come from a private collection, Then it is acceptable (1)
2.50%	M) If all the ethical and legal requirements concerning the antiquities have been met, then their sale is acceptable (2)
1.25%	N) Putting a price tag on an artifact degrades it cultural and intellectual value. When an artifact looses its cultural context it loses its archeological importance (1)

QD5 (cont.):

1.25%	O) Treasure hunting is a major threat to the underwater maritime resource. The sale of antiquities from shipwreck sites undermines the professional credibility of maritime archaeology in the eyes of both the archaeological community and the general public (1)
2.50%	P) There is nothing inherently wrong with the sale of "old things," however, this is different from the commercial exploitation or destruction of cultural heritage, both of which are wrong (2)
1.25%	Q) The anthropological approach essentially covers the same ground as the historical particularist, but brings more science to bear on the excavation, science that will supplement greatly the historical context of the wreck (1)

Total: 80

This issue of selling antiquities is the "immovable wedge" that exists between archaeologists and salvors. There are compelling arguments on both sides. Although 17 different categories were identified among the responses received, they do break down into 2 main groups, those for it and those against it. Among those who feel the sale of antiquities is acceptable (A, B, C, D, U, I, J, L, and M) the two most commonly stated justifications were 1) multiples of identical artifacts or those with no research value (answer C) and 2) using the sale of artifacts as a means of funding additional research (answer B). Among those against the sale of antiquities (E, H, K, N, O, and P), its violation of the ethics and principles of archaeology (answer E) was the most frequent response. One response that didn't fall into either category but nevertheless made a valid observation was category G.

QD6:

13.41%	A) Lack of publication, especially publications geared towards the general public (11)
7.32%	B) To work well with divers (6)
21.95%	C) Failure to effectively communicate with and educate the general public concerning the value of maritime archaeology. Archaeologists don't make history interesting enough (19)
6.10%	D) Failure of cultural resource management to effectively protect sites. This is both a failure of government and of cultural resource managers (5).

QD6 (cont.):

9.76%	E) There is widespread lack of a coherent standards and practice among maritime archaeologists creating an *ad hoc* approach to the study of maritime archaeology. There are also at present no enforced accreditation standards. It is still perceived by many to be a field run by non-professionals (8)
1.22%	F) The educational programs have failed to effectively train underwater archaeologists (1)
12.20%	G) Maritime archaeologists have failed to find a middle ground approach to working and cooperating with salvors and or sport divers. They have not convince these groups of the value of archaeology over treasure hunting [this response is similar yet slightly different than response B (10)
3.66%	H) Maritime archaeology has failed to integrate well with other disciplines as it tends to be too self-centered and isolated (3)
1.22%	I) Lack of funding for survey projects designed to locate undisturbed sites (1)
9.76%	J) Maritime archaeology has failed to integrate with mainstream archaeology (8)
1.22%	K) There has been no significant failures at all (1)
4.88%	L) Maritime archaeologists have tended to be too back biting, petty, and elitist which has excluded other groups with a shared interest maritime subjects (4)
1.22%	M) There has been too much emphasis on excavation/fieldwork techniques (1)
1.22%	N) Maritime archaeologists have typically failed to get into the water as soon as technology allowed them to (1).
1.22%	O) The field has overlooked the vernacular segment of maritime culture (1)
1.22%	P) There have been too many compromises with treasure hunters (1)
1.22%	Q) The field has failed to move beyond the particularist approach. What is needed is more synthesis of existing data and less focus on individual shipwreck sites (1)
1.22%	R) There has been too much emphasis on high profile projects (such as the *Mary Rose, Vasa* - author's note) which has hurt the proliferation of smaller scale project (1)
Total: 82	

The range of responses to this question offers many insights into those factors that have limited the overall development of maritime archaeology. One of the most common failures mentioned had to do with publication, communication, or education, especially as it related to non-archaeologists (answers A, B, C, and G). Combined, this type of failure accounts for more than half (54.88%) of the responses. Other internal factors where mentioned (F, J, M, N, O, Q, and R) as well as interdisciplinary

problems (H, L) but these appear to be minor failures compared to the communication/publication/education problem. The one exception to this was response E, which represents a fundamental flaw with maritime archaeology as a whole. Given that it was the fourth most mentioned failure, this issue is potentially quite serious.

QD7:

25.88%	A) Never work together because of conflicting principles (22)
40.00%	B) Work together, but only in a few cases under special circumstances (34)
34.12%	C) Work together in many cases and should do so more often (29)
Total: 85	

This question also reflects a substantial "middle ground" in the archaeologist verses salvor debate. But the fact that 25% of respondents felt that archaeologists and salvors could never work together indicates that there is a significant minority in opposition.

QD8:

30.59%	A) Helping many archaeologists to work underwater (26)
22.35%	B) Having no effect on how many archaeologists are working underwater (19)
30.59%	C) Hindering many archaeologists from working underwater (26)
16.47%	D) Not sure (14)
Total: 85	

The somewhat even distribution of answers to this question suggests that overall, health and safety regulations are having no real effect on the field of maritime archaeology as a whole.

QD9:

24.42%	A) Too much emphasis on technology (21)
41.86%	B) The right amount of emphasis on technology (36)
18.60%	C) Too little emphasis on technology (16)
15.12%	D) Not sure (13)
Total: 86	

The responses to this question suggest that technology, on the whole, is serving an appropriate role. The higher frequency of answer A compared to answer C may be an indication that there is slightly too much emphasis on technology, possibly in only a few areas of maritime archaeology, such as deep-water exploration.

QD10:

1.25%	A) Advances in wood science studies (1)
16.26%	B) Historic preservation legislation and cultural resource management (13)
6.25%	C) The development of academic programs specific to maritime archaeology (5)
3.75%	D) Development of underwater recording techniques (3)
2.50%	E) Multiple developments, see comments below (2)
12.50%	F) The development of deep water techniques (10)
6.25%	G) Maritime archaeology being recognized as a legitimate part of archaeology as a whole (5)
2.50%	H) Maritime archaeology integrating with terrestrial archaeology in a "seamless" approach (2)
3.75%	I) The *Mary Rose* (1545) Project which brought underwater archaeology to the public (3)
12.50%	J) Technology. This category is very similar to categories D and F, but these responses were interpreted to be broad in nature (10).
2.50%	K) Keith Muckelroy's "scientific" approach (2)
1.25%	L) Nick Rule's development of the direct survey method (1)
1.25%	M) *Persistence of Sail in the Age of Steam* Souza(1998) (1)
1.25%	N) Unfortunately, there have been no significant changes in maritime archaeology with the same magnitude as Cape Gelidonya (1)
2.50%	O) The proposed UNESCO Draft Convention on the Protection of Underwater Cultural Heritage (2)
3.75%	P) There have been significant developments in all areas of maritime archaeology (3)
1.25%	Q) The use of the Internet as a tool to quickly disseminate information to a vast audience (1)
1.25%	R) The media presentation of maritime archaeology (1)
1.25%	S) Maritime archaeologists working with sport divers (1)
2.50%	T) The development of conservation techniques for artifacts from an underwater context (2)
1.25%	U) Scholarship. This category is similar to categories C and G, but it is interpreted to be much more broad in nature (1)
2.50%	V) *Shipwreck Anthropology* (Gould, 1983) (2)
1.25%	W) The Nautical Archaeology Society (NAS) (1)
2.50%	X) Mel Fisher's popularizing the "study" of shipwrecks when he salvaged the *Atocha* (2)
1.25%	Y) *Brother Jonathan* court case was a major development in the USA (1)
1.25%	Z) People viewing shipwrecks as a source of information and not treasure (1)
1.25%	AA) The discovery of the *Titanic* by Dr. Robert Ballard (1)

QD10 (cont.):

1.25%	BB) Formation of the Institute of Nautical Archaeology (INA) by George Bass and others (1)
1.25%	CC) Ulu Burun shipwreck excavation because it proved just how much information and material culture can be recovered from an ancient wreck. (1)

Total: 80

The wide variety of responses to this question (27) is interesting. Two of the three most common responses (F, J) both involve technological developments, accounting for 25%. The most frequent response (B) reflects the importance of historic preservation legislation and cultural resource management to the field. It is worth noting that only 5% of respondents (total from both categories K and V) felt that theoretical developments were significant, and one respondent felt that there had been no significant developments since Cape Gelidonya (N).

Two respondents provided multiple comments that reflect significant developments in several areas. The multiple comments included dendrochronology, replicas, the rise of an anthropological perspective, avocational training, non-destructive subsurface survey methods, and "the end of the Robert Marx/Peter Throckmorton 'treasure hunter as archaeologist era."

QD11:

9.30%	A) Yes (8)
40.70%	B) Yes, but it could be improved (35)
38.37%	C) No (33)
11.63%	D) Not sure (10)

Total: 86

The results of this question indicate that there is substantial dissatisfaction with the way academic institutions are preparing graduate students for working in the field of maritime archaeology. The high percentage of those who responded "No" (Category C) also indicates that there is a potential crisis in academia, one that needs to be addressed. The problems facing academic programs are examined in QD12.

QD12:

2.99%	A) Students should be required to learn more languages (2)
38.81%	B) Students need more practical experience, more fieldwork experience, and better field schools to prepare them (26)
4.48%	C) There is not enough academic emphasis and research standards need to be improved (3)
1.49%	D) There is not enough teaching about the marine environment
1.49%	E) Multiple problems- see comments below (1)
4.48%	F) There is not enough teaching of a multi-disciplinary approach to maritime archaeology (3)
5.97%	G) Students should be encouraged to work with non-professional archaeologists (4)
1.49%	H) Students need to be encouraged to be more self-motivated and show more self-initiation (1)
4.48%	I) Currently there is little or no career development for students. This response is similar, yet slightly different than category B (3)
5.97%	J) There needs to be more teaching of both cultural resource management procedures and of historic shipwreck preservation legislation (4).
5.97%	K) Teaching overall is very underdeveloped or non-existent in this area/country - see comments below (4)
4.48%	L) There needs to be more teaching of theory, especially as it pertains to the "big picture" questions of social history and social issues (general theory level of interpretation). The teaching of maritime archaeology still needs to catch up with land/mainstream archaeology in this regard (3)
1.49%	M) There needs to be more teaching which focuses on boats, sailing, and navigation (1)
1.49%	N) There should be more international cooperation between educational institutions (1)
1.49%	O) There needs to be more integration with the archaeological mainstream, land excavation experience should be a prerequisite for maritime archaeology students (1)
2.99%	P) Academic programs need more funding to support higher degree (PhD) programs (2)
2.99%	Q) Instructors need to be more concerned with the progress of their students and less with their own research projects (2)
1.49%	R) Training in the principles and techniques of land archaeology needs to be taught first before training in the principles and techniques of underwater archaeology – similar to category O (1).
2.99%	S) There needs to be more practical and theoretical training - combination of categories B and L (2)

QD12 (cont.):

1.49%	T) Currently there is a lot of change happening as the next generation of instructors takes over from the old guard (1)
1.49%	U) Because the field changes to quickly in areas of technology and theory, it is hard for professors to keep up with the latest developments (1)

Total: 67

The most commonly stated problem concerning the teaching and training of maritime archaeologists was the lack of practical work experience (category B). The practical application of archaeological techniques and methods is fundamental to becoming a working archaeologist, yet there is broad acknowledgement that this is not being effectively taught or offered to students. Other responses, such as M, O, R, and S, also relate to practical experience issues. This lack of practical experience results in many students becoming unemployable after graduation, a result reflected by category I.

Although there was only one respondent who mentioned a general lack of motivation and self-initiative among students, this was a comment also mentioned by George Bass during his interview (see Appendix E).

Those who indicated that maritime archaeology programs were either underdeveloped or non-existent in their countries (Response K) came from Italy, Germany, and South Africa.

QD13:

Ranking	Name	Score
1	George Bass	272
2	Keith Muckelroy	120
3	Peter Throckmorton	83
4	Jacques-Yves Cousteau	50
5	Colin Martin	47
6	Jeremy Green	42
7	Ole Crumlin-Pedersen	33
8	Robert Ballard	26
9	(a)Richard Gould, (b) Richard Steffy	20
10	Margaret Rule	18
11	Sean McGrail	16
12	Joan du Plat Taylor	14
13	Patrice Pomey	11
14	Martin Dean	10
15	(a) Jon Adams, (b) Blundell, (c) Honor Frost, (d) Robert Marx, (e) Larry Murphy	9
16	(a) Donny Hamilton, (b) Carl Olof Cederlund	8

QD13 (cont.):

Ranking	Name	Score
17	(a) Nino Lamboglia, (b) Duncan Mathewson III (c) Gordon Watts	7
18	(a) Mel Fisher, (b) Robert Grenier, (c) Michael McCarthy	6
19	(a) Frederic Dumas, (b) Feninda, (c) Ivor-Noel Hume, (d) Daniel Lenihan, (e) McBride, (f) A.J. Parker, (g) Plato (h) Tomaline	5
20	(a) Alverez, (b) Chappele, (c) Detlev Ellmers, (d) Anders Franzen, (e) John Goggin, (f) Alex Hildred, (g) Luna, (h) Peter Marsden, (i) Morris, (j) Ucelli, (k) Yorke	4
21	(a) Aberg, (b) Rene Baucaire, (c) James Delgado, (d) Gianfrotta, (e) Michael Katzev, (f) Mark Lawrence, (g) Moore, (h) Nicolay Nicoleysen, (i)Robert Stenuit	3
22	(a) J. Barto Arnold III, (b) Peter Benchly, (c) Edgerton, (d) Graem Henderson, (e) Jamm, (f) Donald Keith, (g) Linder, (h) Mendel Petersen, (i) Rieth, (j) Greg Stem, (l) Phillipe Tailliez, (l) Underwood	2
23	(a) Emil Christensen, (b) Gagan/Cousteau, (c) Clive Cussler, (d) Davies, (e) Ben Ferrari, (f) Flemming, (g) Fred Hocker, (h) Jessop, (i) Jonshecoy, (j) McCann, (k) Cemal Pulak, (l) Skelton, (m) Roger Smith, (n) Souza, (o) Ray Sutcliffe, (p) Christer Westerdahl	1
		Total: 1033

A total of 84 different individuals were listed in QD13, represent a mixture of professional archaeologists, amateurs, and treasure hunters. These results indicate that George Bass is by far the most commonly recognized name in maritime archaeology (1st place ranking). His high score (272) was more than double that of Keith Muckelroy's (2nd place ranking with a score of 120) reflecting very broad-based name recognition. Bass's place as the most influential person in the development of maritime archaeology can be credited to: 1) his founding role in modern maritime archaeology, 2) his proclivity of publication, 3) high profile in the media, 4) his fight against treasure hunting, 5) over 35 years of teaching at the University of Pennsylvania and Texas A&M University, and 6) the creation of the Institute of Nautical Archaeology.

What is also interesting is the prominence of Keith Muckelroy, whose influence on the field was limited to less than 10 years. Peter Throckmorton's 3rd place ranking can be partially credited to his popular publications and strong ties with the sport diving and amateur sector. This also holds true for Jacques Cousteau (4th place ranking). Colin Martin's recognition (5th place ranking) can be credited to his consistent record of publication, his reoccurrence in a wide range of media including television, newspaper, and radio, and his leading role as a teacher of maritime archaeology at the University of St. Andrews.

These results also indicate that there are some individuals, like Joan du Plat Taylor, whose important influence has largely been overlooked.

QD14:

Of the 93 responses received only 17 were able to provide the complete reference for a published historical/archaeological research report that was conducted or funded by a professional salvage company. An additional 19 respondents provided partial or incomplete references.

QD15:

Of the 36 references provided the most commonly cited was *Treasure of the Atocha* (Duncan Mathewson III, 1986), which was mentioned 5 times. It is true that this type of "gray" literature is not widely published and not widely known by the general research community. The results of QD14 and QD15 support the generally held belief that commercial salvage and or archaeological projects do not typically result in a published report, and in those rare occasions when they do, they are not widely circulated. It is also interesting to note that although Mathewson's (1986) work on the *Atocha* was the most commonly cited, it has been found to be a very poor example of professional research (Green 1987).

APPENDIX E: TRANSCRIBED INTERVIEWS

I) George Bass
II) Martin Dean
III) Colin Martin (a & b)
IV) Richard Steffy
V) Greg Stemm

I

TAPED INTERVIEW WITH DR. GEORGE BASS

CONDUCTED ON 8 JANUARY, 1999

BY

GLENN DARRINGTON

GD: This will be tape 1 of side 1 of the interview with George Bass on Friday, January 8th at approximately 11:15 am.

[INTERVIEW BEGIN]..... he's doing very well with his Duart Point Wreck; he's also getting near the point where he is looking towards retirement so this was a great project for him to end on.

GB: What is the wreck? I don't know about it.

GD: It's a 16th century English Pinnace which was used during a Cromwellian expedition.

GB: Was it found some years ago?

GD: It was found in .... 1991 I believe, or 1992 and its really the only full scale project being done in the UK by a professional archaeologist. In my paper that I'm going to be talking about, that is something that needs to be addressed. Why is most of the work being done by amateur programs? But for my dissertation research, you are the... quoted as the founding father of modern underwater archaeology, and in reading some of the literature there is a few questions that I have concerning the development of the field. Also, I will be talking about some of the things that don't typically get published, I mean when we read a report we hear about the success of it, but a lot of the time we don't publish about the mistakes, the headaches...

GB: I was talking to someone here who said you wanted to write an article about that. I was telling him about all the mistakes we made along the way and I thought that would be a good article.

GD: That's right, because we learn more from our mistakes.

GB: And I'm very free to admit them. We destroyed so much stuff in the early years. We hosed out amphorae, not knowing you could find seeds in them, and we didn't know how to conserve things. And it can take a long time before you realize your mistakes. We soaked the 24 lamps from the 7th-century Byzantine

ship from Yassi Ada in fresh, running water for a week, or something like that, but we didn't have a professional conservator. Well, for 30 years the lamps looked fine. But now it's 38 years later, and in the last few years the salts crystallizing finally have made the surfaces exfoliate so that parts of the lamps have just crumbled.

GD: That's exactly what I want to talk about is some of the issue and some of the people you feel are important in terms of the field. People like Peter Throckmorton and Honor Frost. But my first question deals with the article you had in *Shipwreck Anthropology* (Gould 1983) "The Plea for Historical Particularism"..... What I want to produce is something for future students to kind of get, you know, what was the kind of theoretical/methodological differences because again that is something we don't hear about a lot. And I think its something that needs to be framed for new students in the future. In that article it was enlightening to me, again coming from the Texas A&M program, and an anthropological background, I was kind of biased against classical archaeology, but in reading that article you made some very good points, do you feel now, its been 15 years later, that there has been more of an integration between classical archaeology and anthropology, or are those biases you've mentioned before still prevalent?

GB: I think the biases are still there. I've always found that the people with the most closed minds are usually mediocre people, so I have no problem whatsoever relating to Patty Jo Watson, who has written a book on theoretical archaeology, or with Cathy Deagan. I have invited both to come to Texas A&M over the years, to spend 2 or 3 days with us, to advise us how to be more anthropological. They then see some of our strengths and, in general, we end up finding out we agree on our approaches [more than we had expected] even though those are very well known anthropologically trained archaeologists. But then there are people who talk about

their research designs and the fact that we don't have them, and all that, and I just think they have little minds.

GD: Do you feel now that underwater archaeology has had 40 years to grow as a profession that the role of historical particularism has changed, because in a new field, like in the beginning of archaeology, historical particularism plays a key role because you don't have a lot of [recorded] sites and you just don't know what is out there? But as the database grows you tend to make correlation between different data sets and you get away from the kind of individual site if you will.

GB: Well, just today, I was sitting in on all the papers on La Belle--that's historical particularism--and I think it's very exciting and it is probably one of the most prominent archaeological projects in the New World. I don't know if it should have been done more with an anthropological thrust...and I'm not using anthropology as a dirty word..... The one person who still seems to feel very strongly about that is Dick Gould, who organized the conference in Santa Fe for which I wrote that paper. When he reviewed Dick Steffy's book in the Journal of Field Archaeology, he just used that as a platform to attack me, INA, and everything we stood for. Why didn't he just do his own work and let other people judge whose approach is better, instead of continuing to attack us? I don't understand this.

GD: Today, in modern underwater archaeology, do you see, is there any factionalism? Again, the field has grown so much and there are so many more underwater archaeologists now that it has the potential for there to be subdivisions within it, in terms of these theoretical approaches.

GB: I don't see it, I don't see it. Perhaps part of that is the fact that so many of the people now who are practicing this work did come out of the Texas A&M. program, so they would have been trained with a historical particularistic bent. We trained the state underwater archaeologists of Florida, South Carolina, and, until

recently Maryland, so that's going to be reflected in the way archaeology is done under the waters of those states. And the chief archaeologist of the US Navy is one of our graduates.

GD: That's right, I interviewed Bob yesterday.

GB: Also, we just heard Robin Woodward, who got her master's degree from us, talking about the steamboats of Vancouver, British Columbia. That's wonderful.

GD: Looking back, what would you say are some of the biggest disappointments, or failures, either personally or writ large in the field of underwater archaeology?

GB: Well, I think the main one is conservation. We did not know enough about it when we started. We were pioneers, and that is our excuse, but we probably destroyed a tremendous amount of evidence about the contents of the ships. For example, the Bronze Age ship we just excavated at Uluburun we now know was carrying coriander, safflower, sumac, pomegranates, and figs. So what did we throw away from those early ships when we just hosed out the containers?? And we didn't know how to conserve the wood on the early wrecks. It's not overly important, for we recorded them extremely well, but the wood is gone for future generations. It just dried out and that was the end of it. Also, as I said, we didn't know how to get the salts out of things. We now have year-round conservation going on at Bodrum, whereas before whatever we did had to be done during the short summer seasons when we were on vacation from our teaching jobs. So that's one thing.... Other disappointments? I'm sorry, for this is trite to say, but I'm sorry that 100% of the population doesn't appreciate the difference between archaeology and treasure hunting. In a way, in the countries where we work it's all over. In Turkey, they would never allow treasure hunters in because they see articles about us in Turkish magazines and the press constantly, and the museum we started--

which is now a fully Turkish museum--is the second or third most popular museum in the whole country. It is considered the finest museum of nautical archaeology in the whole Mediterranean. So why would the Turks want treasure hunters to come in, and not just benefit from that? Unfortunately we haven't won this battle world wide, and there are still countries which think they are going to make money working with treasure hunters, which we know is not the case..... I can't think of anything else at the moment.

GD: One of the points I would like to make is that as archaeologists we may be great at doing an excavation and recording this data, but we typically fall short when it comes to explaining to the general public the value of our work and getting them excited about it. Where treasure hunters grab that public attention much easier, its much easier for them to do that and that is one of the challenges that we have not, that we're still not meeting. We should, I think what we do is much better.

GB: I don't think it is as bad as one might think. For example, it's true that the treasure hunters get into National Geographic, but my group of underwater archaeologists, starting back at Penn through Texas A&M, have done 10 or 11 National Geographic articles. We've had a NOVA film, and PBS specials, and I just saw a wonderful film on La Salle's ship La Belle, which NOVA is buying. So some of these projects do in fact get good publicity, and gradually maybe the public will see how exciting archaeology is. For example, the ABC-TV 20/20 program on our work--only 15-18 minutes long--was the second most watched program in America that week, beat out only by "Seinfeld." Now people may have watched it because the ads were always talking about ancient treasure from the deep and all that, but when it was actually shown, there were just a lot of amphorae. We did show the gold jewelry from Uluburun, but it stressed the treasure of knowledge. They didn't say that, but that is what they were stressing.

GD: I think that we can use that to grab the people's attention and use it to educate, this whole idea of public awareness. What do you think has been the most significant development for the field as a whole over the last 50 years?

GB: Oh, without question, turning it into an academic field so that now people who go out and start doing this are ten time better prepared than I was when I did it. I still today probably can't tell the difference between a mast and a keel if I see it on the seabed. So I just watch these graduate students--like last summer at Selimiye, Fred Hocker's dig in Turkey of a 9th- century Byzantine shipwreck-- and they're around the table, all excited, talking about little scarf joints and things. I don't even know what they're talking about half the time--the futtocks and garboard strakes. I mean, I know generally, but they find those little tiny pieces of wood and get terribly excited. So that's part of it. Just turning it into an academic field where people are studying shipwrecks now very seriously, and it's no longer just sort of a spin-off of land archaeology, where people don't know about ships. I still don't, but most students do. I'm going to start an excavation this coming summer, if we get the permit, and if all goes well, of a ship that sank between 450 and 425 BC. It's the first ship ever found from the Golden Age of Classical Greece, when the Parthenon was being built, and Pericles and Sophocles and Socrates and Herodotus and all these people were around. I'm going to turn the hull over to one of my graduate students to study and publish.

GD: Is Cemal still in the Program?

GB: Yes, he's actually on the faculty.

[BREAK]

GD: One of the points, again, that I would like to make, and I'd like to hear your comment on this, saying that the field has actually come of age. If you look at a lot of the early literature that was done in the late 50s and early 60s making points that "this is where we need to go" and if you look at it today I think we've met a lot of

those challenges in terms of standards of survey and publications, and creating regular conferences like this one, the number of academic programs that have sprung up now.

GB: The quality of the papers at these conferences I think is astonishingly good now. It's not technique-driven anymore. You know, people giving endless papers on the latest side-scan sonar or something like that. The land archaeologist doesn't give papers about what jeep to drive or what's the best trailer to haul stuff in. So I'm very pleased about that.

GD: Do you have any concerns about the role of technology??

GB: Very, very. I'm giving a paper at a deep-sea conference at MIT this month, and they'll probably run me out of town on a rail. I have a copy upstairs. It's forty minutes long. It's not supposed to be more than 20-30 minutes, but I don't know what to cut out because I'm so opposed to the fact that they are saying, "this is different, this has to be directed by engineers." What I'm trying to get across is that this is the same argument I heard when I first got involved in underwater archaeology and everybody was saying, "oh, you have to do it with professional divers," and "it's too complex for you to understand, it's too difficult, too technical."

GD: You need to be an expert diver to this.

GB: Yeah,

GD: Like now, you have to be an expert in ROV.

GB: That's right.

GD: And I don't think.... but are there archaeologists out there who are getting that training or do we need to have a call for.....

GB: I think you hire people like that. For example, the guy who invents some laser device is not the same guy who goes into the operating room and actually operates with it on someone's eyes. It's given to the physician to use. So I say,

"yes, I'm happy to use [your invention]." We're going to have another submarine built this year for use in Turkey. When I wanted things like that in the past, for example if I wanted to develop stereo photography for mapping shipwrecks, or stereophotogrammetry, and I didn't know the mathematics for the lens types or the intervals between photographs, I knew the people to call on. But they didn't direct the project. And my team found the first ancient wreck ever found by side-scan sonar. I didn't operate the sonar unit, but got people from Scripps and from EG&G to come on over and do that for us. I think it's exactly the same now, so I'm quite frankly offended by the people who say that deep-sea archaeology is different. What they are doing is telling a whole generation of school children that archaeology is finding things and pulling them out of the sea, which has got nothing to do with archaeology. It's the twenty years you spend after that, on research, conservation, and publication.

GD: Do you see the gray area between professional archaeology and salvage? I don't know if it's a niche but a role that's being filled by people like Greg Stemm, but what is your opinion on that? Is it, we can work in that area or as professional archaeologists we should continue to stay away from that on principle?

GB: I would like to think that it would be possible, but at the moment I don't think it is. When we did Serce Limani Glass Wreck it took two and a half summers of diving, nine months in all, but then we spent twenty years with a team of conservators, like six people working twelve months a year, and full-time illustrators working twelve months a year, and then I finally turned in the first volume last year, which is almost exactly twenty years since we did the excavation. It is a thousand-five-hundred pages written by twenty scholars over that twenty-year period. And that is only the first volume. We're now on volume two, we haven't even got to the glass yet. Well, who is going to pay for all this, which costs far more than the excavation, if your idea is profit? Nobody, nobody. I enjoy

talking to Greg Stemm, he has some interesting wrecks now, but according to the interview in the latest issue of *Historic Preservation* he gave me to read he said we have to sell the artifacts, that's the bottom line. He said it's the only way to pay for it. If it were possible to have an ironclad agreement that nothing is sold, that it's all paid for by advertising and media rights and all that sort of thing, then I would see that it would be possible to do. But that has not yet happened.

GD: Again, I think the La Salle Project is a great example of how you can get a lot of money donated and do good archaeology, significant work without having to sell artifacts. Who would you include in the list of "founding fathers" of the field.

GB: Certainly I am impressed with what Phillipe Diolé wrote back in the early 50s. He was a diver and writer I quote in my *Archaeology* article. I'll do it again because he wrote back in 1953, I think it was, before *4000 Years Beneath the Sea,* which had been previously published in French, why should archaeologists allow work to be done underwater by professional divers and just sort of trust what they see. And he said archaeology is archaeology, period. He didn't actually do [archaeology], but he dived on wrecks. I was impressed by Philip Talliez, who at one time was actually above Cousteau and the reason [OMITTED STATEMENT]. When he did the *Titan* wreck off the coast of southern France, he said it would have been a good idea if there had been a diving archaeologist with them, but it came across as if he meant as an assistant and that it still took professional divers to do the work, and you also needed professional sailors and so forth. I don't know that much about John Goggin. I do know that he dived in Florida and gave a course in underwater archaeology before I ever learned to dive. He was supposed to give a paper at the first St. Paul conference, which really was the start of all the conferences, but he had cancer and couldn't come. He died shortly after, so I never met him. I only heard yesterday that Stanley Oleson had been diving in the late 40s off the coast of Florida in a hard hat. I heard that from somebody. There is

some history which has been forgotten along the way, which is unfortunate. I knew George Mylonas, the excavator at Mycenae, who taught for many years at Washington University in St. Louis. Just talking to him one day when he was an old man, I found out that he had learned how to helmet dive in the late 40s and went down in the Bay of Salamis to see if he could find any remains of the Battle of Salamis So there were things going on with archaeologists. There were a group of Italians, professional divers, who were building metal grids over their wrecks before I did. It was Peter Throckmorton who really wanted to prove that it was possible to do archaeology underwater as well and as carefully and as accurately as is done on land, so I credit him with being the visionary more than almost anyone else. Of course we worked together. Now, whether he had actually planned for an archaeologist to come and dive, I will never know. I never thought about that. In other words, when he approached the University of Pennsylvania to see if they would organize an expedition to excavate the Bronze Age shipwreck he had found at Cape Gelidonya, he [and his colleagues] were hoping Rodney Young would be going out. But Rodney Young was already in his late 40s by then, I suppose, and they never expected him to learn how to dive, I don't think. So it may have been a shock when Rodney Young said to me, "Would you like to dive to be the archaeologist?" and all of a sudden Peter got a diving archaeologist, Honor Frost got a diving archaeologist, and Frederic Dumas got a diving archaeologist [none of them expected]. So that the first year was rather tense to say the least.

GD: That is a great story in *Archaeology Beneath the Sea* as a grad student, being there at that point in time, do you feel that there are opportunities like that today or has academia changed that graduate students, well you just said you would be handing over a project to one of your graduate students.

GB: OK, because of what [my professor] Rodney Young did for me, I offered Don Keith the Turks and Caicos wreck, which he excavated when he was still a

graduate student. At that time it was the oldest shipwreck ever found in the New World, and at the very time he was doing that I turned over to Cemal Pulak, when he was still a graduate student, the excavation of the Uluburun shipwreck which has been called the most important Late Bronze Age site found in the second half of the twentieth century, on land or underwater. So I'm not averse to providing opportunities. I try to do it all the time. I went with Ralph Pedersen to Bahrain to introduce him to people so he could do a survey there, which he did. I took Jack Neville to a lady out in Bulgaria when he wanted to work there, to sort of open doors. These opportunities still arise, but for some reason the students don't pick them up quite so quickly as they did, and I don't know why that is. Rodney Young just gave me an opportunity, and I took it and ran with it and sort of turned it into a field, with an institute, with an academic program. Then the first person I had go out and do a wreck was Michael Katzev, who did this wonderful job with the excavation of the Kyrenia ship. He found it, excavated it, preserved it, and put it on display. He hasn't published it fully, but I haven't given up. I turned over the Porticello wreck to David Owen, who was an undergraduate when he first came to us. He excavated it very well, and then it was published by another one of our students, Cynthia Eiseman. So in the 60s it worked out very well. But now--and I don't want to name names-- I give opportunities to people and they go out and don't do anything with them. And some of these people, for reasons unknown--I suppose they sort of have to break the umbilical cord-- have shown no appreciation. I had to leave Penn to develop my independence and not stay under Rodney Young's shadow for the rest of my life. I was 40. A lot of people have to do that. But I've always talked about him in worshipful tones because he did so much for me. So it sort of hurts that someone I've given an opportunity to, raised the funds for the project, turned it over to them, and when they leave they don't have a nice word to say about me, or Texas A&M, or INA. When that has

happened, it hurts badly, and I don't know what causes it. That is my greatest disappointment in the field, frankly. [Off the record.]

GD: I think from my own personal experience, I have a lot of regrets from Texas A&M, from the fact that I didn't exploit all of its resources, I never took a course from you and I really kick myself for that. That was a failure on my part. I think one of the reasons for that is youth, and not seeing beyond the next semester, and you really need to look in terms of your professional career, five, ten years down the road, what is your goal, and I think a lot of the young students coming in just don't see that far ahead, they're just...

GB: This is not for the record [statement made off the record].

GD: Again I attribute this, a lot of this, to youth. You just don't know any better. You don't think, "I need to get as much as I can."

GB: When did you leave us?

GD: I had two years of course work in '88 and '89.

GB: So Dick Steffy was still teaching.

GD: Yes, Dick was still there, it was his last year. That is one of the things that I'm happy I had the opportunity of. I have been in contact with Dick and I'll be interviewing him over the phone, unfortunately he wasn't able to come to this conference. But again, he is one of those key people who have gotten into the field, I don't think through the academic side of it, but through that passion for the topic.

GB: That is one thing that won't happen in the future, I'm afraid, and that's too bad. Some of the people who have been key players in our program in Turkey we wouldn't even take today because they're not archaeologists. They don't have the right credentials. But in the early days, when I went to Yassi Ada, it was sort of the first 10 people who came and knocked on my door and said, "I'm a skin diver can I go with you?" They sort of helped to develop this whole field.

GD: That actually brings up my next question, in terms of the role of amateurs in the field now. Looking at the early literature since the field began we have always talked about the value of volunteers, of people who have an interest in it. But it is a double-edged sword because you also get people who are amateurs but are not qualified to do the work and they end up going out and running a project and it's a disaster. What can we be doing.. [END OF SIDE ONE]

**Large gap at the beginning of Side Two - tape recorder malfunction.

GB: As I was saying I really didn't see him as a participant in the early days. [Talking about John Huston]

GD: What about people like Edward Link? I kind of put him in that same category.

GB: He was like John Huston. All these people had enough money to do it, so it was like the gentlemen archaeologists of the nineteenth century or the early twentieth century, but he wanted to be in charge. Once he asked to do a joint project with me, back in 1961 in Israel, when he first went back to Ceasarea. I saw that I would be working for him, which is the same thing that's happening now with this deep-sea archaeology. I think that if it is an archaeological project, then it should be run by an archaeologist. We've shown that's the way to go and the best underwater archaeology that has ever been done was done by archaeologists.

GD: Honor Frost. I have tried to get an interview with her, I've written her a letter, but I'm not having very much success. I'm hoping Martin Dean with the ADU, he said he will try to give her a call, but in terms of her role, could you talk a little bit about her involvement.

[Section omitted by request].

GD: Would it be fair to characterize the early days as being rocky, you have a lot of very dynamic personalities and very few people who knew the principles of

archaeology that needed to be applied, the standards that needed to be applied, and those were part of the growing pains of the field?

GB: When I first became involved in this, there was still this debate over who should do what, which I mentioned earlier. Should we be professional divers, or experienced divers, or archaeologists? Now when I'm called "the father of underwater archaeology" I don't think it's necessarily a fair description, but I know why it happened. It's because I published a lot. I found out that the Italians were making grids like ours before we did, but they published this in some little note in a skin-diving magazine, whereas I was putting it out in scholarly journals, popular journals, and so forth. So they actually were doing what we were doing before we were, but I got the credit for inventing all these metal girds and so forth. I think that was part of it. The other thing that happened was starting an institute. You know that I got one of the National Geographic Centennial Medals, and we all had to give a speech of thanks that could not be more than two or three minutes. Cousteau read his, John Glenn read his, Ballard read his, but I like to walk on a high wire sometimes, so I didn't write mine out, but just sat there and listened to everybody, looking around me. When I got up, and everybody afterwards said it was about the most effective speech, I began: "Just a few thoughts from the head table." I said I'd been sitting there wondering why it was that we were chosen to represent the fifteen explorers of the twentieth century. What did we have in common? And there were a number of things I saw that we had in common. I said everyone at the table had taken his own personal adventure and made it something permanent. For example, Cousteau had the Cousteau Society, Jane Goodall developed the Foundation for the Study of Primates, or whatever it's called, Hillary started the Foundation for Sherpas, and Leaky had the Leaky Foundation. Unlike when somebody just rowed across the Atlantic, or climbed the highest mountain, and that was the end of it. All of us had tried to turn our adventures into

something permanent. Now maybe there were a couple who hadn't, but in general that was the case. I'd formed the Institute of Nautical Archaeology. We were trying to make something that would live on and be giving to the world something in return for the fame and glory that we had received. So I think that may be another reason that I've got a lot of medals and things of that sort. But why I'm here was not just because I went to Cape Gelidonya. It could have all ended there. I was not planning to return. It was Claude Duthuit and Wlady Illing, a Frenchman and a German, who were just skin divers, who said, "Oh, come on, we started something good. You've got to come back [to Turkey] because we can't get the permit, we're not archaeologists, but you can." And I said, "OK," and we went on to another wreck and another wreck, and pretty soon four decades have gone by and we have an academic program and an institute and a museum to show for it.

GD: The creation of the institute, what were some of the biggest growing pains of the first decade of it being formed?

GB: Certainly the worst thing was that we were going to have Cyprus as our headquarters and the war broke out after just one year and we thought that was going to devastate us because we were literally war refugees for a couple of years. There was no central location of the institute any longer. The Katzevs lived in Athens. I lived in Denver, Pennsylvania, simply because that's where Dick Steffy lived, and we were doing things out of our bedrooms. The *INA Newsletter* was put out from Cynthia Eiseman in Philadelphia. In retrospect, every cloud has a silver lining. The war forced us to broaden our horizons and not put our eggs into one little Aegean basket, or eastern Mediterranean basket. It forced us to branch out. Before we even knew it, we were doing things in the Caribbean, in Kenya, and other places, like Penobscot Bay and the York River. And it forced us to find an American headquarters at a university. If it hadn't been for that, we might still be just two or three people sitting in Cyprus.

405 **GD:** So you think that broadening, going into other areas, was probably one of
406 the reasons for its success.
407 **GB:** Yes.
408 **GD:** I think that's all the questions that I have, thank you very much. You're
409 very kind.
410 [END OF INTERVIEW].

II

TAPED INTERVIEW WITH MR. MARTIN DEAN

CONDUCTED ON 20 FEBRUARY, 1998

BY

GLENN DARRINGTON

GD: It is Friday, February 20th at 10:20 am, and I'm talking with Martin Dean of the Archaeological Diving Unit station at the University of St. Andrews. Martin, just briefly, if you could give a brief background on yourself in terms of how you became involved in maritime archaeology and then maybe talk about your background and experience in cultural resource management as a context for our discussion.

MD: O.K., I first became involved in archaeology as a volunteer on a land excavation when I left school, after I left school, and I was a photographer.

GD: What year was this?

MD: God, it would be... 1965. I was already married. I was trained and practiced as a photographer. I was a very active sport diver, a very, very keen recreational diver, and I discovered that photography wasn't the profession for me. And I saw an advertisement in the Times for volunteers wanted on an excavation where they were going to pay. And I spoke to my wife and decided on a career change and gave up a well paid photographic job to be a volunteer on a archaeological site receiving less money than it cost me to get there. I worked on that site. I was kept on afterwards because I showed an aptitude for the practical side of things, and was given contact names and went on from being a volunteer to being a paid archaeologist. I then ended up working for one of the London units and realized I couldn't get anywhere without any formal qualification. So, I went to university. I had to get entry qualification through evening classes and then I went to university at the age of 29 and I went to the Institute of Archaeology at the University of London. I arrived there just as Joan du Plat Taylor, one of the beginners in maritime archaeology, was leaving. And when she heard that there was a trained and active diver, a student, she collared me and said there is a cupboard full of diving equipment and information, here is the key, why don't you set up the archaeological research group at the Institute again. So I did that. I trained other

archaeologists to dive, student archaeologists to dive, and became involved in underwater archaeology as a student running various projects. From then, once I graduated, I went back into land archaeology but maintained an amateur interest in underwater archaeology, until Keith Muckelroy died in a diving accident, and I took over his job at the National Maritime Museum and became an underwater archaeologist in 1981. I thought that would be an interesting job, but it turned out to be far more bureaucratic than anything I had ever encountered before because the museum world was not geared-up to archaeology, it is geared up to administration and I actually did very little fieldwork. Disappointingly little. But I did manage to do one or two things involved in research as well as still maintaining my contacts with amateur divers. Eventually I left there to setup the Archaeological Diving Unit here at St. Andrews in 1986.

GD: And you have been here ever since?

MD: And have been here ever since. So my background is really sport diving. I've held every post in diving organizations at the local level. I was a very keen diving officer running expeditions, dives, and things, often centered around shipwrecks and archaeology because that interested me. I forgot to mention one of the things that really clickered my interest in maritime archaeology, it was going on a weekend course in underwater archaeology at Plymouth run by Alan Bax in 1969. That introduced me to taking measurements underwater and things like that.

GD: What was his association with it? I mean, that was before the NAS.

MD: Yes, that's right. There has always been some sort of organization. Joan du Plat Taylor and others set up the Council for Nautical Archaeology and Alan Bax had been a member of that. His interest in archaeology had come via being in the navy as a diver and running an expedition to a treasure ship, and finding it, and doing a bit of archaeology on a treasure ship really.

GD: To move on to my other questions now, when do you consider the field of cultural resource management in the United Kingdom to have begun? Was it in 1973 with the passage of the Protection of Wrecks Act 1973 or in 1986 when the ADU (Archaeological Diving Unit) was formed?

MD: I think, in all honesty, it was in 1986. I would say the passage of the law was an attempt at cultural resource management underwater, but it was patently a failure. If I could perhaps explain the system that was in place then. There were sites that were designated under the Protection of Wrecks Act and people were licensed to do work on these sites. The licenses were given out willy-nilly on the advice on the Secretary of State's Advisory Committee on Historic Wreck Sites. There were very few people on that committee with any diving experience and there were a mixture of people including respectable archaeologists, ship historians, and museum people, but they didn't actually have any underwater archaeologists on it to start with, and they set up the system of issuing these licenses, demanding reports on the licensed work but having no way of assessing the value of these reports. Its quite interesting that in 1986 when the ADU was formed and we set off into the field we discovered that the standard of licensed archaeological work was truly appalling. Very poor indeed. Not because people were willfully bad, it's because they were receiving no guidance whatsoever in how to do these things. The system just didn't work. In fact many site plans we discovered were little more than sketches, they weren't measured, they were peoples' perception of what the site should look like, and these were taken at face value as archaeological site plans by the Advisory Committee.

GD: When it first started then, who were some of the other key people who were involved at its inceptions, and this could go back to when the law was passed in 1973, but more specifically, in 1986 when the ADU was formed.

MD: I think it's very difficult to get to the bottom of who the key people are because lots of people consider themselves to be the key people. A number of times I've heard eminent folk in our subject say or imply that if it wasn't for them nothing would have happened. But of course like all things it's a team effort, lots of people vaguely pushing in the same direction. I think one of the formative things was out of the Council for Nautical Archaeology, I think what the Nautical Archaeology Trust was formed in the 70s, which in 1981 became the Nautical Archaeology Society, which was a society in which you could subscribe. On the committee of that society were keen young chaps like myself who were active archaeologists and divers, although perhaps not being paid to do that at the time... Yes I was actually, I just remembered, as well as what I might call the "old guard," the old buffers, and the old diver with a strong interest in archaeology verging on the interest of things with a high intrinsic value. Anyway, the early days of the NAS (Nautical Archaeology Society) for some reason the then Secretary of State interested in or responsible for the Protection of Wrecks Act had an interest above average. He invited an ad hoc group of people to his office in London to talk about the problem with the Protection of Wrecks Act, and I was one of those people. I went along and we spoke to him about the problems of cultural resource management, it wasn't working, in very broad terms. In fact, at that time we hadn't even heard of the term cultural resource management at the time, we didn't actually say that or use that term. We said that the Protection of Wrecks Act wasn't working and what it really needed was some professionals devoted to it. We left the meeting and went down the Tower Block in London to the ground floor and one of his aides came rushing down the stairs and stop us in the foyer and said "Ball park figure, how much would it cost?" Off the top of our heads we pluck off a figure. And I say we, there were about five or six of us, pluck off a figure and he went back. That eventually lead to the idea that they could actually

pay for maritime archaeology and it wouldn't cost the earth and eventually an invitation for people to tender for this was put out in 1985, and the University of St. Andrews was successful in it bid. So the University had contacted me because I was actually structured to be in it and the way it was going to work, in collaboration with Colin Martin who was already here.

GD: Was, at that time, the person through the Department of Transportation?

MD: That's right.

GD: Now that person is with the Department of the Environment.

MD: Yes, the Minister was David Mitchell, the Right Honorable David Mitchell, who was then Secretary of State for Transport, in the Department of Transport. Responsibility passed from the Department of Transport to the Department of the Environment in 1991. The Department of the Environment then hired off cultural matters to the Department of National Heritage, which has recently changed its name to the Department for Culture, Media, and Sport.

GD: Who would you consider to be the key people now in 1998? The ADU, the people on the Government side, are there others??

MD: Yes, there are others, and obviously we would think the ADU is important. And there's no question that it is, but it's not the only factor and it would be presumptuous of us to consider that we are the only ones to have an influence. We obviously have a very strong influence because what we say to the Secretary of State's Advisory Committee on Historic Wreck Sites has a profound influence on the decisions they actually make. They rarely, rarely contradict what we have to say. Occasionally they do, but no very often. The other key players are, apart from ourselves, are the Members of the Advisory Committee. Now the Advisory committee was a self-perpetuating committee. It had no constitutional structure and its membership remained unaltered for 25 years. Virtually, unless people died and then they had to replace them. Recently, they have instituted a rolling

membership program so that everybody was given their marching orders, some immediately, and some with a 3-year grace, and now there is a rolling program of members and a new Chair, who has made a profound impact. I think her leadership, that is Maureen Merison, Lady Merison, has had a profound impact on the way the Committee works and therefore on the way that the Protection of Wrecks Act is being administered. This has to be balanced against the bureaucracy that runs the administration required to keep the Act in place. The civil servants with this responsibility vary year on year because civil servants are also on a moving program and they are never in place for more than say 3 years with one responsibility, and they cycle. So the 2 or 3 civil servants with the responsibility for the Protection of Wrecks Act continually changed. When Lady Merison took over they all changed at once which made it difficult. There was no continuity and no pattern within the civil service of care for the heritage. They were just out and out administrators. So, I'm personally very critical of they way they have handled things. They are consummate pen pushers, and have no desire to progress cultural resource management; they just want to do the very minimum without being criticized.

GD: Has the change.... Is there going to be any continuity created now that people are replaced so often?

MD: They will be replaced, but we have to wait for that. So there is a good change on the Advisory Committee with this really dynamic, very sensible chairperson, who has to battle with a new bureaucracy which is entrenched, which basically is frightened to make judgments because they don't have the experience because they all changed posts at once which was a disaster. It shouldn't be allowed to happen again.

GD: And the learning curve has to start all over again for each new group.

MD: That's right. And of course in principle, each person involved should have a mild interest in the subject, it helps but I think that, frankly that the kind of incumbents now don't have an interest in the subject so it doesn't happen.

GD: In terms of the field of maritime archaeology in the United Kingdom, writ large, would you say that CRM has helped the field, and if so could you give one example of how it has benefited. Conversely, if not, if you think it has hurt the field please give an example.

MD: No, I think it has been generally beneficial. I think there was virtual anarchy before. It is still slightly anarchic because of the structure of our legislation in Britain where sites are not protected until they are known about and unfortunately serious damage is usually done before sites get brought to the attention of cultural resource managers or archaeologists in general.

[BREAK]

GD: You wanted to return to the question of key people in the field.

MD: Yes, it is difficult to identify key people because I think that is wrong. Usually it is the organization and an important organization has got to be the NAS, the Nautical Archaeology Society. Not because of the individuals who have been involved, which obviously has included virtually all members of the ADU at some times, but the fact that they have set up a structure for trying to train sport divers in understanding archaeology underwater. Some of these guys are there in the nautical archaeology training program which is weekend and more difficult courses in archaeological techniques for divers, but in fact the whole philosophy behind it is to get people on the cultural resource manager's side as well as teach them basic surveying techniques.

GD: Getting back to cultural resource management helping the field of maritime archaeology, that it has helped because....

MD: In our role as the Archaeological Diving Unit in traveling around we get to meet lots of diving organizations. And in collaboration with the NAS training program, it means that the diving community at large is becoming more aware of the value of historic shipwrecks as a resource that needs to be looked after. And I think that by organizing projects such as SUBMAP, we are able to demonstrate to hundreds of people directly, and probably thousands of people indirectly, that by involving the sport diving community in cultural resource management that it is to the advantage to the object on the seabed and to divers in general and there have been various spin-offs from that project where people who came to that project have gone off and done their own projects in a different way to how they might have done it otherwise. So there is a sort of virus effect where it is slowly spreading through the community in that we now get far more reports of historic shipwrecks brought to us were in the past people would say I found something but I'm not going to tell you where it is. Now they will phone up and say we found this and what should we do. There is an interaction, which is beneficial to the remains on the seabed.

GD: Would you say then that the present structure has a very high educational element to the general public and that it has facilitated the distribution of knowledge and techniques and has created this structure so that people who know nothing about archaeology but do find a wreck now have a vehicle in which to get some training and go through a process.

MD: Yes, I think that is approximately correct. One thing that I think the Nautical Archaeology Society's training program, which has been supported by us and we have been heavily involved in it, one thing that is obvious is that not all groups of divers after being shown how to do surveys and how to run a project can actually do it. It actually requires a certain spark within an individual within a group to actually lead it and it's amazing at how short, how in short supply that is.

And this is why the Archaeological Diving Unit, in its new tendered submission to government, has suggested that it runs projects regularly just to get people into a project to teach them more directly how to run a project. We found frequently before that people would say I have a good idea, but I'm not quite sure where to start. But if they get involved in a project you can show them rather more effectively than in weekend courses, how to actually set-up and start their own thing, and I think that was demonstrated last year in SUBMAP, where the number of projects that sprang up from that was amazing compared to the number of projects that were talked about but never started under the previous system.

GD: Would you characterize one of the shortcomings of the present system as being reactive instead of proactive because it has to wait for a discovery situation to occur?

MD: Yes! That is very much the case. Another important group which I forgot to mention, probably the most important group, in cultural resource management, submerged cultural resource management in Britain, is the Joint Nautical Archaeology Policy Committee, which is an ad hoc group of people which includes members of the ADU and members from the NAS and specialist maritime lawyers and others, looking at the shortcomings in the legislation. Recently... Well, one of the papers it produced was very influential in persuading government to set up various aspects of cultural resource management, the primary one being the requirement for lists of known shipwrecks to be inventorized (inventoried) so the Royal Commissions in England, Scotland, and Wales, and their equivalent in Northern Ireland, have now set up groups of people to collect data about shipwrecks on the seabed as a management tool. It's so that when pipelines are laid there is a source so that known wreck sites can be at least identified. The other aspect is that the JNAPC has been influential in getting seabed developers through a code of practice to take note of their moral requirement to not destroy

cultural remains on the seabed. And again, more and more frequently, contracts are being drawn up which include a provision for cultural resource management investigation before the work takes place, excuse me.

[BREAK]

GD: Getting back to some of the shortcomings of the CRM, the present legislation. One thing you had just mentioned before about seabed developers are working and instigating, when they do a contract, this contingency for underwater archaeology, but it's a moral obligation. Is there any change to make that an actual legal obligation in the future?

MD: It's being worked on. The seabed in Britain is generally owned by the Crown. You are not allowed to disturb it without their permission, but in practice they don't, the Crown Estate Commissions who control the seabed, do not enforce it and it could become an extremely important management tool. They are being worked on but they have shown great reluctance to get involved in another bureaucratic exercise. They feel that they have enough to do dealing with fish farmers let alone people who want to deal with wrecks. But it is being worked on and pressure is being applied by the Joint Nautical Archaeology Policy Committee which incidentally is now, it's value is now being recognized by the new chair of the Advisory Committee and she is going to play a role in this pressure group so we think these, with the Secretary of State's Advisory Committee coming on board, that committee can then pressurize government ministers to then pressurize other government ministers with responsibility for the Crown Estates Commission, so there is going to a more integrated approach in shoving in the right direction. The moral imperative isn't the only one. Some local authorities, for instance Fife, where the local county archaeologist and the planning department is aware of maritime archaeology, they put in their planning demands for those involved in shoreline and seabed management intervention schemes a requirement that some

basic assessment is done. But that isn't nation-wide. But more and more counties are doing it but unfortunately it's still a relatively small proportion of the number of overall counties.

GD: Do you think as a result of CRM that more funds have been funneled into doing maritime archaeology than what was spent before?

MD: The United Kingdom is a rather strange place in that it is made up of 4 separate home countries and there is a degree of competitiveness between the administrators in the home countries to be seen to be doing the right thing. The overall responsibility for the British territorial seas is administered by an English government department, what is now called the department for Culture, Media, and Sport. They oversee the administration of the Archaeological Diving Unit, but in the individual home territories they, that home country, is responsible for what goes on there and the actual licensing, even though it's done through a London organization. Both Scotland and Northern Ireland have been very quick to put conventional archaeological resources into underwater archaeology. What we call rescue archaeology, which you know of as salvage archaeology, onto a couple of sites. One of those sites in Scotland is Duart Point, and that was the first site where conventional land archaeological money had been put into underwater archaeology by Historic Scotland. And that was a useful precedent. It hasn't happened in Wales, well, it should have happened in Wales but they haven't actually handed over the money yet, they promised 2,000 pounds to the SUBMAP Project and it hasn't actually arrived. And in England they are lagging behind.

GD: What would you characterize as the one of the most significant changes in CRM since its beginning. Obviously switching from the Department of Transportation to the Department of the Environment was a drastic change; the formation of the ADU was significant.

MD: That [formation of the ADU] has be the most individual significant point, except those initiatives pushed by the Joint Nautical Archaeology Policy Committee. The next change will be significant, and that is where the responsibility for the Protection of Wrecks Act [1973] is removed from the administrators at DCMS [Department of Culture, Media, and Sport] and passed on to archaeologists and heritage managers at English Heritage. But, unfortunately that requires an act of Parliament for it to take place because English Heritage's Statutes does not allow them to be involved in anything below low watermark due to an oversight when their constitution was framed. It is unfortunate that with the new government it is very difficult to get Parliamentary time for something, which is very low priority in their eyes, unfortunately. But it will happen, everybody is in agreement that it should happen, it's just finding Parliamentary time. Once overall responsibility for the administration is taken away from civil servants and passed on to cultural resource managers we see that that will be a vast improvement in the current situation and one we look forward to greater things.

GD: How would you characterize the CRM relationship with the academic world? Being associated with the University of St. Andrews, at least in the beginning seemed to be a good fit, but I know from experience in the States there has been a divide between cultural resource managers and academics in terms of their perception of how work is done and how archaeology is pursued.

MD: I don't think there is that divide over here, not the same divide, not to the same extent. One reasons is there has been much more interchange between the academic environment and the CRM staff/ environment both ways over the years in land archaeology and in underwater archaeology there has been an absolute integration in St. Andrews and other centers of maritime archaeology. There is an involvement in both CRM and indirectly by academics being involved on committees with CRM responsibilities like the Secretary of State's Advisory

Committee has academics from other universities on it. So I don't see there is a problem here. It may well develop, but I don't see it as having been a problem in the past.

GD: Can you characterize CRM's relationship with the sport diving community, and has it changed over time, did it start out as poor and improved over time?

MD: It started out as very poor. It still is not easy because of the nature of the laws in Britain where an individual's freedom and his rights to do things, the freedom to dive unhindered on the seabed is seen as a basic requirement by many divers in Britain. What CRM is heading for in this country is no interference with that but some sectors of the diving community perceive it as an interference with that right. Organizations like the Joint Nautical Archaeology Policy Committee subcommittee, maritime law subcommittee, has recently produced a paper which is not for public circulation yet, which is suggesting ways in which the law may be changed which does not interfere with anybody's rights to dive unhindered on wreck sites, but would actually prevent, legally requiring divers not to interfere with those wreck sites. Now this is where the problem is. In the past divers have been acting illegally by interfering with wreck sites, that in itself is not illegal, but recovering items and not declaring them to the Receiver of Wreck, but the Receiver of Wreck has been working very hard at the educational thing and it has made great inroads, but the old red-neck diver is a difficult beast to deal with and you probably can't change their views and you, there's a "generational" thing where you have wait for them to die-off and a new generation of divers to replace them now are a bit more amenable to the view that things shouldn't be stolen from shipwrecks and if they are recovered they should be declared to the Receiver of Wreck.

GD: That seems to me to be a contradiction in the management of the resource, the fact that someone can find something, recover something, and all they have to

do is report it to somebody, but those artifacts have already been removed and legislation has to react to get it designated to get any kind of protection.

MD: There is a reason for that. Heritage law in England has never ever been blanket legislation, unlike Scandinavia or Italy, or even in some of our offshore islands like Guernsey, where everything over a certain age is protected by law. It isn't in this country, and the legislative framework is designed to do two things, one is to maintain the rights of the owner and their heirs, and the other is to maintain the rights of the Crown. So in other words, if anybody is going to make money out of it, its the owner, if the owner can't be found it the Crown that is going to make money out of it. Heritage has taken a very low priority. The time isn't right to push for blanket legislation. It may come eventually, but certainly not in the foreseeable future. Not in the next few decades. So those of us who are pushing for change are not pushing too hard because we feel it would be counter productive. If you push too hard you could actually develop a bow wave, which could then swamp you, and we don't want that. We, other cultural resource managers and like-minded people, through JNAPC have realized that probably the best way is through education. In fact, the government has funded the education of divers by supporting, financially supporting, the Nautical Archaeology Society training program. And it is felt that if you can advise people to do things in Britain, that can work. This has been demonstrated in the diving community in the past by the "greening" of the diving community. When I started diving in the mid-sixties, animals and plants on the seabed were attacked. I myself have been on holiday in the Mediterranean collecting red coral. In this country I have done things, which I'm totally ashamed of, to the wildlife because it wasn't considered to be wrong. Its still not illegal in this country to do dastardly thing to the wildlife on the seabed but people rarely do it because there is peer pressure now which says that is not a green thing to do, that doesn't follow the diving conservation ethic.

It's felt that by introducing a conservation ethic into cultural resource matters that it would be far more effective in Britain in the short term than trying to introduce stricter legislation.

GD: Are there any private firms in the UK that are doing underwater archaeology for clients because I know for land there are examples, Colin's Pittenweem Project that was a firm, the group that is doing the Byre Theater. Are there any similar kinds of groups that have gotten into underwater?

MD: Yes there are. There are a couple of contract outfits; the Institute here has done some. Very basic, mostly inter-tidal contract work, but Ian is going to be charged with doing more direct underwater stuff, or organizing that. There are at least 2 other outfits that have been intermittently employed. One contract archaeology unit which has diving archaeologists on staff called Wessex Archaeology, and the other is the Hampshire and White Trust for Maritime Archaeology which has been doing the odd contract, not so many underwater, but some. There may be others about which I know nothing about.

GD: Can you characterize the work they have done, are they helping the process or do you think private firms have actually hurt the process?

MD: No, I think they've helped. They have... One bit thing with all these organizations subscribe to the Institute of Field Archaeologist's Guidelines and Codes of Practice so it's all done to high ethical standards. There are some individuals who've been acting as consultants to commercial organizations interested with recovering objects, now that's something different. The work these people have been doing is in advance of seabed disturbance, cables, pipelines, jetty extensions, that sort of thing.

GD: In terms of the future of CRM, do you think it will actually be generating jobs because in the United States the legislation has been key in all these firms cropping up and as a result of that they have actually been able to employ a greater

number of archaeologists over the years. Do you think the UK will follow along those lines?

MD: Yes, it will. I'm not sure we'll ever have the same number employed in archaeology underwater, but there's a slow expansion every year with more people involved in maritime archaeology in Britain. More and more direct archaeological work will take place and is taking place and this will lead to more job opportunities. But its never going to be on the same scale as has happened through the Corps of Engineers requirement in the U.S. because I think there's not going to be that legislative framework yet.

GD: Because it is a blanket system in the United States, where everything falls under it. Finally, my last question, actually I have two more. One, would you characterize CRM in the UK as a success, partial success, or failure, and a brief reason why, and then finally, how do you see the future of CRM? Do you think it's bright or do you think that it has a bleak future?

MD: I think that it has been a partial success. This is related to under funding by the government. I think a lot more could be done if the ADU was allowed to do more, but it can't because the resources aren't there. We feel that there should be much more outreach, but we don't have the manpower to have that outreach. Other people do that outreach as well, but we have suggested it to people who find shipwrecks. I think we need more people to go along a lot more quickly to people finding shipwrecks, and we need more outreach in the form of face-to-face dialogue and lectures to diving groups. I think the future is bright because I think that is recognized by most people as just a case of persuading the people with the purse strings. Now unfortunately the people with the purse strings at present are civil servants without a feeling for the subject. I think it's just by chance that personalities have prevented quite an important increase in the effect of CRM just because they didn't have the wit to suggest that even a few more hundred of

thousands of pounds should have been made available. Quite a small amount of money in terms of overall government budgets, but that level of funding could have had a significant impact on CRM over the next decade. But I think things will change. I'm very optimistic in that the ADU's next contract, which starts in about 6 weeks time, we will be allowed to do better things. We've not been given the freedom to do the things we want to do but this will change. I think with the new attitudes within the Secretary of State's Advisory Committee, with a move to English Heritage, in five years time there will be a blossoming of CRM in this country and that will move on to underwater work.

GD: All right, thank you for answering all my questions.

[END OF TAPED INTERVIEW]

III(a)

TAPED INTERVIEW #1 WITH DR. COLIN MARTIN
CONDUCTED ON 21 OCTOBER, 1998
BY
GLENN DARRINGTON

GD: October 21st, 2:15 pm interview with Dr. Colin Martin. For this first interview what I would like to talk about is your background and how you got involved in archaeology and your feelings and thoughts about what it was like when you first got into it. Particularly prejudices that might have been towards you and any obstacles that you had to overcome in terms of getting involved with it yourself.

CM: Right, right. Well that's quite a tall order because I come from a really quite unconventional background. I had a somewhat disrupted childhood because my father was in the army and we were posted around the world so I went to a number of schools in this country [Scotland], and in Germany, in Singapore, and London, and far away places like that. As a result I really screwed up my education, and I came out of secondary school at Aberdeen with fairly minimal academic qualifications. At that stage I was absolutely fixed on the idea of a career in aviation. I wanted to join the air force, but I had a problem with eyesight and I couldn't pass the RAF medical. However, I was just able to pass a medical which allowed me to train as an assistant flying instructor, light air-craft, and I did that, and for a year or so I earned a precarious living as a club assistant instructor in various locations around Britain. I toyed with the idea, I tried to get into some slightly dubious things in aviation but happily for my subsequent career these came to naught. And at this point I would have been in any case, called up for military service. I would have been the very last intake of our National service groups so I elected to volunteer, to do a short service commission, for three years, which was better money anyway and I got the whole thing out of the way and all the rest of it.

I was commissioned into what was then the Royal Army Service Corps... All this is relevant; I know it doesn't sound very relevant.... I specialized in dropping supplies and land rovers and things like that out of the back of big airplanes on parachutes. And this brought me to Cyprus. This would have been late 1959. Which was more or less the time that just over the water George Bass was doing all his exciting things at Cape Gelidonya but I knew nothing of this. However I did learn to dive when I was is Cyprus. It was a wonderful period to be in Cyprus. It was just after the Cypriots had stopped shooting at us and hadn't gotten around yet to shooting at each other. So there was this wonderful sort of oasis of peace and stability on that, that marvelous island and I had absolute free rein to go where I wanted to and I took up diving and dived extensively around the Cypriot coast with the RAF Nicosia Sub-Aqua Club and this led inevitably to recognizing that there were all sorts of interesting things lying on the sea bed. Not just amphorae but there was a wonderful wreck which I think is still unexplored off the panhandle at the eastern end of Cyprus which seems to be a mass of concreted weaponry, swords and etc. which we thought at the time, without having terribly much knowledge, might be Crusader period, and so on. I have to say that in those days, although interested in archaeology, I'd been interested in the past in monuments where I was brought up in the Scottish Borders. There was a tremendous amount of obvious history in the landscape, Roman forts and native settlements and so on, and I was very excited by all these, but in a very unknowledgeable and uncritical way. I thought they were all just fascinating but I had no real knowledge about them and it more or less applied while I was in Cyprus. And like so many people

of my generation I did loot the odd souvenir. Certainly on no large scale but the odd thing was raised. And that was that and in due course I came back to the UK and I scrabbled around for something to do. I still hadn't the faintest idea what I wanted to do. I still wanted to be a jet fighter pilot but you know it was all stacked against you and there was no way I was going to achieve this, so I tried a number of careers. I worked on a farm for a year, thinking agriculture might be a good thing to get into, but that didn't really take on, I then got a job in an office in a paper company, manufacturing paper, which we'd better gloss over, that was a disastrous failure, and then almost in desperation I set up as a free-lance photo journalist writer in the proverbial garret, and for a couple of years I eked a very precarious existence from my pen and my camera. I specialized in popular historical and archaeological topics, the idea being to go out, take photographs, get the story, and produce a sort of package you could sell to something like the *Scots Magazine* or *Country Life*. So I built up something of a little earner there but as I say it was pretty precarious. I also did script writing for schools radio which was very interesting, it involved traveling around quite a bit and crafting these educational scripts which were then performed by actors as part of a thing called "Exploring Scotland." A long dead series, but I worked quite a bit for that and that actually was A) good fun and B) quite a nice little earner and kept me going. During this period, and particularly during the time I was working for the paper company, which conveniently had its offices just next door to what was then the National Museum of Antiquities of Scotland, I began looking, going on my lunch break and looking at the museum and looking at the antiquities of Scotland and

began learning more about them and at that time I got friendly with quite a number of influential people, influential to me. The then keeping of the museum, the late Robert Stevenson, was very kind to me and recognized my enthusiasm, which is about all I possessed in those days, as did a number of other people, and on occasion I went out to do stories on archaeological digs. I went along as a photojournalist, and many archaeologists working in Scotland at that particular time were very kind to me, they encouraged me, they helped me get the story and so forth. And one in particular, the late Sir Ian Richmond who was a great Romanist and who was at the time excavating the outstandingly important Roman military site at Inchtuthal in Perthshire, Roman legionary fortress. I was fortunate enough to go there to visit him in the field with my camera and my notebook to do a story and he was just incredibly nice. Looking back I cringe at the thought of this callow youth appearing and disrupting a great man's work, you know to get a pathetic little news item.

GD: How old were you at that time?

CM: I would be, let's see, this would be '65 I would think. So I was about 25. He and others in the sort of Scottish archaeological establishment were just very, very supportive, and nurtured my growing interest, and I became a Fellow of the Society of Antiquaries of Scotland, and I began to read more extensively as part of the research for my articles. So at this stage I was becoming very enthusiastic about archaeology, but on a very amateur level. Meanwhile, the diving I had started in Cyprus went on in parallel, I kept it up, and I did sport diving around the Scottish coasts, but then I became involved with Professor David Bellamy, the

botanist from Durham University who in the '60s reached sort of national fame. He was a very remarkable man, very very eccentric really, but he popularized botany and conservation and the environment. This in the 60s being very revolutionary stuff. And I got involved with a number of projects that he had instigated or was part of, some of which involved diving. We were involved in expeditions to Cornwall counting kelp species and things of that kind. We also went to northwest Spain on a botanical expedition, which involved diving as well. So these things were all happening in parallel and there I was at the typewriter going out doing the stories, taking the photographs, becoming a semi-professional photographer, and becoming reasonably adept with words, etc., and then suddenly in 1968 I had gone down for my usual lunch-time session, we drank rather more in those days I recall than we seem to now, in the local pub in Kelso, which is where I was working in the Scottish Borders, and somebody pointed out a news item in the Daily Telegraph which was about an expedition that was going to go to southwest Ireland which was going to look for one of the wrecks of the Spanish Armada, the *Santa Maria del la Rosa*, which sank off of Blasket Island off the southwest tip of Ireland, during the retreat of the Armada around the British Isles after failing to invade England in 1588. So I wrote to the organizer of this expedition, a man named Sydney Wignall, asking if I could come along. I said I was a diver, I was a journalist, and I would like to do a story on the project and that I would be able to write the story, take the pictures, and you know could I come along and do this. I got a very enthusiastic response from Syd Wignall, who was a very extraordinary man himself, a great eccentric. I've seemed to meet a lot of eccentrics in my life,

I'm probably one myself, and so I jumped into my mini-van, shaved off, sorry this was the start of my beard, on that day I stopped shaving, and with one technical exception connected with diving, I haven't shaved since. Jumped into the mini-van with my personal diving gear, cameras, etc., and drove off to Dingle in southwest Ireland. That evening in the pub Sydney Wignall offered me the post of project archaeologist on the strength of my very limited knowledge of archaeology gleamed through being a free lance journalist and just having an enthusiastic amateur interest, also my ability to dive. Because in 1968, certainly in Britain, the concept of an archaeologist who could dive as well was almost unknown. We all knew about George Bass, we were sort of a decade on from George's pioneering discovery of the fact that, you know, archaeology underwater had to be done by archaeologists who dived, but there were very few people in Britain at that time who even at the very paltry levels, of which I could approach both these disciplines, combined the two. So that was really good luck and we had a few Guinness's on that.

GD: Joan Du Plat Taylor didn't dive, did she?

CM: No, she didn't.

GD: She was involved with Cape Gelidonya but she was just involved with the analysis.

CM: Yes, but she was a very important figure in all this nonetheless, because I think its probably true to say that in Britain she was the first person who recognized that there probably was an important underwater archaeological resource in British waters and this was quite revolutionary in the 60s. There was,

not a prejudice I think it was just built on ignorance because there was obviously archaeology in the Mediterranean, there were all the looted amphorae wrecks, the stuff that Cousteau had done, a long tradition of classical antiquities that had survived underwater in the Mediterranean, which of course George Bass, at just the right moment, came in and established, there's no doubt about it, he was the man who invented underwater archaeology, the way we know it today. But there was a sort of feeling that this was really rather a thing peculiar to the Mediterranean and in the wild northern waters around the British Isles, and indeed elsewhere in the world, the same sort thing wouldn't happened. Everything would have been smashed to bits by the waves and there wouldn't be anything archaeological at all, and that it just wasn't something to think about. Well Joan duPlat Taylor thought that this might not be the case. Fresh from her experience with George Bass at Gelidonya, although she didn't dive she was very much part of the project, being a straight classical archaeologist in her own right, being the librarian of the Institute of Archaeology at London, etc., and being, you know, in late middle-age at this stage, she was no chicken so I mean it was even more wonderful that she took this pioneering role. She started to pull together people in Britain who might combine to do something positive about the potential for underwater archaeology in Britain and from the outset she saw it as a kind of bringing together exercise of the archaeologists and the divers and I think in hindsight one might possibly say that was slightly unfortunate because there has been from then till now a kind of "them" and "us," you know the roughy-toughy divers are the ones who leap into the water and do things and the archaeologists are the rather sort of wimpish,

elderly individuals who stand on the surface and say "Oh, how clever you are, these are very important things, we'll take them off to our museum." And so that is one slightly negative aspect, but the very positive side of it was that a group of people were brought together. They were a fairly disparate group, they didn't always pull in the same direction, there were various sorts of dramas and crisis's, but I suppose this is true of any innovative initiative like this, and things started to happen. The first archaeologically motivated enterprise in Britain was in 1965 when Commander Alan Bax, who subsequently developed the Fort Bovisand Underwater Center, which of course has been a major venue for an international conference ever since, though it seems to be slightly [garbled] now. He was involved with various people looking for and indeed finding the wreck of an eighteenth century Dutch East Indiamen up in Shetland. So this was the sort of background to my arriving on the scene in Ireland in 1968. However, all sorts of things happened just before that, which I think are relevant. The wreck of the *Association,* Admiral Sir Clowdisley Shovell's flagship of the Mediterranean fleet which crashed into the Scilly Isles returning in 1707. I think three or four of them were wrecked, including the flagship with enormous loss of life, navigational error, in fact it was one of the spurs to the chronometer and Harrison and getting this side of navigation sorted out. Well, the wreck of the *Association,* the flagship, was found in 1967. At that time there was no legislation in Britain, which related in any sense to historic shipwrecks. There was just plain straight salvage law as enshrined in the 1894 *Merchant Shipping Act* and the *Association* triggered off a treasure hunt that was quite bizarre and actually very frightening because

everybody descended on the place. All sorts of dubious characters. They fought one another, firearms were produced and terrible things happened. So as well as being an affront to the sanctity of the maritime heritage, it was a threat to law and order which was probably a greater driving force for government legislation than our archaeological goals ever could have been. So that triggered off a process which resulted ultimately in the passing of the *Protection of Wrecks Act* of 1973 which probably isn't appropriate to discuss here but was actually a piece of, not exactly of emergency legislation but it was to sort out a really rather potentially nasty situation and wasn't really framed with archaeology as the primary goal. There were all sorts of other imperatives. Although the *Protection of Wrecks Act* was a very important milestone it wasn't ideal from the archaeological point of view but that might be something we might shift back to. I ought to go back now to Blasket Sound. So this was happening inside all this you see. It think it does say quite a lot for the very nascent sort of state for underwater archaeology that somebody like me could walk in off the street and over a pint get the job as a project archaeologist. That I'd done a bit of diving and I'd written a few sort of popular articles on archaeology.

GD: Was the motivation behind that project, was it salvage or was it a sort of antiquarian interest?

CM: No, it was actually very interesting. Syd Wignall as I say was an interesting but eccentric person. He was driven by a very very powerful urge to do something innovative and new. He was certainly driven by archaeology. He wanted to throw light on the Spanish Armada by finding one of its wrecks, and in that sense he was

208 really ahead of his time in that his goals were archaeological. The finances were
209 ramshackle to say the least. I'd probably better not say too much, but his sources
210 of income were never entirely clear. On occasion the money seemed to be there in
211 some abundance and on other occasions, you know they were in the dorm. And it
212 was a very strange environment within which to work because everything was
213 being done hand to mouth in financial and other terms. There was no clear project
214 design or anything like this, it was all just off the hoof. It seemed to be a good idea
215 to be doing it but there wasn't much more than that. There were also some very
216 considerable personality problems because Syd wasn't exactly in a partnership but
217 he was working closely with another character called John Grattan who was a
218 fairly senior naval officer who'd commanded the Navy's clearance diving unit. He
219 was sort of a top navy diver. He was a very gung-ho individual. A very engaging
220 character but a rather dangerous one in a number of ways, who certainly wanted
221 the treasure, I mean that's what he was in it for. It was unclear as to who was
222 going to get what; I mean that this was never made plain. Certainly I think it's fair
223 to say that Syd's motive was not, not the treasure but it was not... the fact that we
224 didn't find any treasure is probably the best thing that ever happened to me, shall
225 we put it that way. Grattan was a strange character because he, I learned this some
226 years later, he'd had a near death experience. He was a very very adventurous
227 diver if that's the way to put it, and he ran the clearance diving team, a diving unit
228 in Malta, virtually as a private treasure hunting salvage company. I hope this isn't
229 going to be libelous. On one occasion he had an accident in which he went on, I
230 won't get technical about their breathing apparatus but in order to extend his dive

he went onto pure oxygen at depth and not surprisingly he went into an oxygen related seizure and his chief petty officer, who I get to know very well indeed, saved his life. Sort of forced his teeth open with his diving knife and gave him external heart to heart resuscitation and all the rest of it, but he was sort of brain dead for a short period before they got him around and that according to his chief petty officer, who I spoke to at length much later, completely changed his character. And he became very aggressive, very gung-ho, very very short fuse, and very difficult to deal with. Back to the archaeology, well we found the wreck after this amazing search and we conducted two seasons of work. It was very difficult, it was deep, it was 120 feet in the eye of the tide race, it was actually a pig of a site to work, which was really sort of fortunate because it made us sort of do things slowly. We didn't achieve all that much but we learned a great deal, at least I did. I learned about underwater archaeology, I learned about working with people, I learned the problem of the fruit cake in underwater archaeology, that it does attract very very strange individuals and one has to manage that situation in all sorts of ways. I think it's actually been... You know it has attracted weird people and I think it still does.

GD: Just like Stonehenge attracts...

CM: Yes, yes, I think it does. I think its a problem, its one of the reasons why we have remained isolated for so long. Where does that take us... yeah, so we did the archaeology. I think by the lights of the time we did it reasonably well. We conducted a survey of it, we did do some very limited excavation but it was actually quite difficult to excavate you know technically on that particular site, and

happily again I think for archaeology and certainly for myself, we didn't find very much at all in the way of anything that might be regarded as treasure because effectively the bottom of the ship had dropped out and that's what we found. So we found a ballast mound with a significant bit of structure pinned beneath it and almost nothing else. But it did take us through two years of you know thinking about it all and doing underwater surveys and making things work, etc. Well, I then after the two years, having made a precarious living, I would just sort of go back for the winter and write for my living, and I also did a certain amount of salvage work, of modern wrecks, over the winter with a sort of thin wet suit and all the rest in the Outer Hebridies, etc., with various other characters, and that certainly sharpened my diving skills considerably, but it wasn't much fun. In 1970 I decided to look for another Armada wreck and got a small expedition together and went to Fair Isle where with great ease we found the wreck of *El Gran Grifón*, the flagship of the hulks. By this stage I had, I realized that underwater archaeology was something that really needed doing something with. By this time too I, without any sense of having become a professional archaeologist, I had developed my contacts with the archaeological world, with the establishment if you like, in Scotland and I felt that... I felt more comfortable with the old guys who dug up Roman forts, etc., than with the growing breed of underwater archaeologists because I felt that underwater archaeology seemed largely to be an adventure, it seemed to be diving, it seemed to be on the fringes of what was respectable. Some people were genuinely over the fringe and some people were striving to do the right thing but I never felt within underwater archaeology, and to

be perfectly honest I still don't, a lot of collegiality with my peers because I feel their sort of going off.... their inward looking. They don't relate to the wider discipline of archaeology and the people who are performing it. And so that sort of feeling was growing and I felt I wanted to get involved in something over which I could more or less take charge. In order to do that you had to organize it yourself. So we got together this small expedition, we found the *Gran Grifón*, and we did a useful season's work on it, mainly survey.

GD: Who was involved with that? Was it yourself and....

CM: It was me and my brother and a couple of guys who had been on the *Santa Maria* expedition.

GD: And did you contact anyone else in the archaeology community to get advise or any input?

CM: Not really, all I'd done, as I said, I was becoming more and more a part, if you like on the fringes, of the Scottish archaeological establishment. I went to the lecture series of the Society of Antiquaries of Scotland, I'd become of Fellow of the Society, etc.. I was relating with these people and a number of them, one in particular Dr. Kenneth Steer who was then secretary of the Royal Commission, he was enormously supportive. He understood what I was trying to do. I was trying to say this is like going to dig up a Roman, or survey, a Roman fort or any other antiquity in Scotland, its the same thing, and they were receptive to that. And the underwater archaeology fraternity, it's not that they were not receptive, it just didn't occur to them. Then for a couple of years the other side at this time, this

was the pre-St. Andrews time, working up to the St. Andrews moment, the *Adelaar* on Barra, which again I would ...[END OF SIDE 1 OF TAPE1 1].

[BEGIN SIDE 2 OF TAPE 2].

CM: At this point St. Andrews was trying to get archaeology going as a discipline that was taught at undergraduate level. It had actually a tradition, again it was slightly unconventional, they had a man in the Classics Department, Terrence Bruce-Mitford, of the Bruce-Mitford Lecture, and Terrence had done a lot of work in the Near East, and Cyprus, and Turkey, and so forth, before the war. He'd then gone of in the war and done terribly sort of secret things. He was in the resistance in Greece and things of that nature came back, and I think he did more work in Cyprus, etc. And this, as it was in those days, was at a very personal level. It involved bringing great crate-loads of antiquities back with him, and so on. But he was a distinguished man in his own right and it was just his interest, it wasn't his job, he wasn't employed as an archaeologist at the university, he was employed as a teacher of classics, but he brought his interest in archaeology and the university when he retired felt it ought to continue this interest. They appointed a man called James Kenworthy, a brilliant young scholar who'd done his first degree at Cardiff... no... yes... I guess it really doesn't matter. As so James and I started at just the same time, in 1973. He had arrived as this young archaeologist whose brief was to carry on the work of Bruce-Mitford and get archaeology going at St. Andrews, develop it. And I was doing my thing. And we quite quickly joined up and became friends, but unfortunately James is a very highly-strung individual, he was also very young and inexperienced, though brilliant, and it was all fairly

disastrous to be blunt. He wasn't up to the politics, he was got at from various quarters, and eventually he left as a fairly unhappy man. It worked out not too badly for him subsequently. But this was going on and in 1978, St. Andrews made the big push to get archaeology here and decided that with what James was doing and what I was doing, that was two elements, that they would make a senior appointment. They would appoint a Reader in archaeology. They had the... They'd managed to raise some money for this and they were at the point of actually making an appointment. They'd actually interviewed people, and they'd offered the job to an individual, professor, now professor Chris Morris, who has got the chair at Glasgow, but he was then a lecturer at Durham, and he'd been offered this post. And just at this point there was a big pulling of the rug by government on the universities, this was 1978. Huge cutbacks. It all just collapsed. Moreover, the whole future, not just of archaeology but also of ourselves, individually, was looking very very dodgy in '78. But happily... sorry no... a couple years after, this is 1980. We had been teaching archaeology, had been getting archaeology courses going, and the university, after much thought and through a very hair raising time, our jobs were very much on the line, they decided to rationalize in various ways, I was shifted to Scottish history, having by this time made friends with Professor Christopher Smout, and we had a lot in common so we interfaced through history, archaeology, landscape, environment, the sea, etc., Again note not just diving down looking for old bits of boats, I mean it was integrated with mainstream archaeology and now extending into history. So I was bailed out. I began teaching within the department of Scottish History, and in 1983, Robert Prescott came up

with this plan to form an interdisciplinary unit called the Scottish Institute of Maritime Studies and the triumvirate which started it off were Robert as an ethnologist, myself as an archaeologist, and Chris Smout as a historian, but each of us had links with other disciplines and that is how the concept of the Institute was born. We started off with a conference, an international conference, quite a small-scale international conference, in 198.... I think it was 1983, and we actually started running things in 84, which was our first course happened then, and that was followed very closely by the winning of the ADU contract, which we won by default. Basically Greenwich screwed up and we got it because we were there and picked up the pieces and we offered a viable sort of alternative, which of course was very fortunate because as you well know that has gone on from that date until this.

GD: So that was the only other area in the United Kingdom, the National Maritime Museum, first Keith Muckelroy doing that, and then later Martin Dean, who, when I talked to him said he was dissatisfied with the bureaucracy and that he wanted to do archaeology.

CM: Yes, yes, the Greenwich story was a sad story because in the late 60s it was directed, and into the 70s, directed by Dr. Basil Greenhill, who had retired early from the foreign service I think, and he was a very innovative character. He was quite a difficult character in a number of ways, but he saw archaeology as important, he created this thing called the Archaeological Research Unit at Greenwich. Sean McGrail became its director, and he was not a diver obviously, but he was very interested in boats and prehistory, and all this sort of stuff, and

under Sean, Keith was brought in as a sort of diving arm, so they had all the elements of becoming a very very important center in nautical archaeology where they were sort of looking at the conventional way of just boat studies, but also brining in underwater archaeological approaches, etc., and it all collapsed in the sort of modern re-organizations. Keith's death did not help, then Martin [Dean] wasn't happy there, so when Martin left they said we'll sort out underwater archaeology, we'll forget that, it's just a problem, and then Sean himself was heaved out. So archaeology has effectively been abolished at the National Maritime Museum. It was personalities, it was mismanagement, and it was opportunity lost. But in the end it was to our advantage because if Greenwich had had its act together it would have, it should have had the ADU. I mean it was far better positioned to do everything.

GD: When did you decide to get your Ph.D.?

CM: Ah, right. Yes, well that came about in... quite soon after I'd arrived. I took my time to get it. Another person who has here when I came was Geoffrey Parker. A historian, distinguished historian, who specialized particularly in things Spanish, particularly the reign of Phillip II. But being multi-lingual he had access to a combination of primary sources, which no one else had ever really studied in total before. And I had him just over this weekend we celebrated 25 years of friendship by exchanging signed copies of our latest books. Anyway, Geoffrey at an early stage expressed a great interest in what we were doing on the Armada because he recognized, as a historian, that the archaeological input could be a very major one. So we collaborated as colleagues in various ways and at some point

along the line, I can't remember for the life of me exactly when, Geoffrey said "Why don't you do a Ph.D. on this?" because I could do it as a staff Ph.D., it would cost peanuts in terms of the, you know, the fees. I shouldn't tell you this. But of course it meant that I had to do it while holding down a full-time job. So I think I registered first in 1975, and I submitted in 1983, and that was my Ph.D. So that gained me respectability, you know, from no "0" levels to a Ph.D.

GD: Before that did you experience any discrimination against you because of your lack of academic credentials?

CM: I can't say I did. I think either because those who knew me accepted me for what I was and hopefully respected what I did. I think that's true. I choose my friends carefully. I don't sort of fall out with people, but I'm very good at just sort of disassociating myself if its just not working out it either direction. So on that process you tend to have friends and colleagues who you actually get on with, ...[garbled words] for all you know. And then I actually think that quite a lot of people who didn't know just assumed. I never ever gave any grounds; I never tried to suggest that I was anything I wasn't. But I think some people thought, "Well you know he must have been to Oxford or something.

GD: You had written a section for Peter Throckmorton's *The Sea Remembers.* How well did you know Peter Throckmorton? Was it just a professional relationship?

CM: I didn't know him very well. I'd met him, and got on very well with him. It was the classic conference situation, in that you've known of someone for years and years, you meet them at a conference, you have a few drinks together, and you

get on extremely well together, and that's about the strength of it. But then of course over the book, where Peter was actually quite ill. He was not a well man at all at that stage. But he was a very very nice editor to work with; I mean it was all very sort of amicable.

GD: And what about Keith Muckelroy? Could you talk about him a little bit, about his coming to St. Andrews, leaving St. Andrews…

CM: Right. That is a trickier one, because I didn't get on all that well with Keith Muckelroy, and in hindsight you can see why. I mean Keith was a highflying Cambridge scholar, the world was his oyster. He'd got a double first, and he had elected to go into this rather dubious area of underwater archaeology. Now he did, I think, that for all the right reasons. He saw this as something that needed getting a grip of, it needed defining as a discipline, it needed to be brought into mainstream archaeology, and those were all utterly genuine convictions that Keith had, and had very strongly. He came here because it was a job, I mean, when we were going to appoint research assistants to me, obviously we advertised, and we got applications, and Keith's was far and away the strongest. So he got the job. Seeing it now from his perspective, he's saying who the hell is this guy, he knew perfectly well I didn't have a degree, or anything like that, and perhaps I may have been a little unconventional, because there wasn't a convention really, in underwater archaeology to go by, and we did have some difficulties. Some personal difficulties. That said, I think we did genuinely respect one another and I think that we were... we affected each other for the better. I mean he made me take a more rigorous look at how I approached my archaeology. It's all very well

437 saying there was no precedent, we're just having to invent it as we go along, that's
438 OK but you know it can go too far and I do think you need pulling up occasionally,
439 and that certainly happened to me, through Keith. I think in the other direction, I
440 was certainly very experienced by that stage in the physical business of getting into
441 the water and doing things on historic shipwrecks and so on, and I think that
442 operational side, and perhaps the slightly more pragmatic approach which I tended
443 to adopt... I've never thought that underwater archaeology was a big deal;
444 theoretically, I mean I think its actually fairly straight forward, really. I mean
445 they're closed sites, they're full of interest, they're full of lines of inquiry that you
446 can pursue, but I think you can over theorize, shall we say, and some times that
447 may be counter-productive. And I think there was a disagreement there, because
448 Keith was very much a Cambridge theoretician of the early 70s where they came
449 out with things, many of which are now looked at slightly askance it has to be said.
450 So there was this tension, and I think he was very happy when he left. I mean he
451 was happy here and these weren't personal animosities at all. We always got on
452 very well together, and the little triumvirate of me, because Paula [Martin] was
453 important too, Paula was very important, obviously personally, but professionally
454 as well. She was a kind of moderation between me and Keith. She had got a lot of
455 experience at fieldwork, classical archaeology, she hadn't done underwater
456 archaeology when she came here, but she was obviously a diver. And she was just
457 a sort of reservoir of sound common sense. She could pull things together; she
458 could get find systems going and all the rest of it while Keith and I were sort of
459 rambling on about higher things. Paula was actually just getting the framework

established, getting things done, making things run smoothly, and that was very, very important. So there was that little three cornered... it was collaboration and I think it was very important. And then of course Keith went off, and he was the right man for the National Maritime job, and of course it was just a deep, deep tragedy that it ended as it did. I sometimes try and think what would the situation be if Keith was still around today, and it's impossible to say. But I think it would be very different though.

GD: If you look at the literature, and what people are saying about him now and the things that he did publish and write, and you look at some of the IJNA articles, it seems that he was a voice that wanted to be heard, and he would want to be in the limelight.

CM: That's certainly true. And much of it was really premature. That's what makes it so sad actually, because I think a mature Keith, having gone through, having started off with this deep conviction that he wanted to do something about the discipline, and possibly jumped in at the deep end too quickly, too young, too inexperienced. That all, I think we all would accept that he would, of course, have matured and I think a matured Keith would have had a great deal.... I think what he did contribute was actually, we can all sit with hindsight and say, well we really didn't get this right and didn't get that right, but he was thinking very much on the right lines. I mean a lot of things, even his detractors, if they were honest with themselves, would have to say they were building on things he had first articulated.

GD: Can you talk a little about your involvement with the NAS [Nautical Archaeology Society].

CM: Yes, the NAS... Well the NAS has changed, you know, it keeps changing from one thing into another. But it all started off with the original committee for Nautical Archaeology, which Joan Du Plat Taylor founded in the mid-60s, possibly even earlier, but around the mid-60s, and brought in people like George Naish of the National Maritime Museum, I should say Sean McGrail was there at an early stage, Margaret Rule, Alan Bax, etc., there was a lot of needle between Alan and some of the other members of the early committee, and I wasn't a founder member but I think I was probably invited to join in 1968, and I participated. I don't remember too much about this, its amazing the tricks memory plays, but I certainly was on a sort of consultative committee that was government run and paid for which was essentially the CNA [Committee for Nautical Archaeology] and some others who were really producing discussion papers about what should be happening to underwater archaeology. It was the run up to the legislation. I remember being on this committee because I was really on my uppers financially at the time and we met once a month down in London and I was living on the Scottish Borders, and I use to hitch-hike down for each monthly meeting and put in my claim, probably this lays me over to prosecution, I use to put in the justifiable claim of a first-class rail ticket, posh hotel, and sleeper and all the rest of it. And on what I got for that I lived for the next month. So they did me a favor there. Then it changed, it became associated with the Council for British Archaeology and then, I can't remember the dates, it sort of metamorphosed into the NAS as we know it today. I've never been a very active member. They were very kind to make me President but the President is really rather just a figure head sort of

individual, which I actually enjoyed being because a succession of chairman, who are the ones who do all the work, use to ring me up quite often purely for informal chats about a range of topics that I suppose they must have found useful otherwise they wouldn't have kept coughing up their phone bills. And I appreciated that. It was a very very good way of making one's views, injecting them into the system, without being controversial. Trying to do things in a helpful way rather than a controversial or sort of confrontational way.

GD: My last question or today, because I think the next time when we meet I would like to talk about is your personal approach towards archaeology underwater...

CM: I'll be looking forward towards that.

GD: But do you think, how you came into the field, could happen again today the way archaeology underwater is that it would allow for someone like yourself?

CM: I don't think I probably could. I think it would be very difficult. I think it would be very difficult for somebody to walk in off the street as effectively to what I did at this university and say "Hey I've got this idea, I think it's a good one, will you support me?" Even if there was no direct financial involvement, all they gave me was a wooden hut and a telephone. I think you would be hard pressed to do that, not only at this University but also at any university today, and I think that's a great pity. I think it's a pity that... I don't suggest that everybody should be able to do this because I think that would be shambolic, but the nature of universities is that they should be looking for new things, and if they are going to be so cautious that they only appoint so-and-so because he has such-and-such and such-and-such

a background, etc., etc., then you're not going to have these people who have got the brilliant ideas that no one has ever thought of before. I think it's a great, great pity, but I think you're right I don't think it would happen again today.

GD: Do you think the reason that it happened in your case was directly related to the "newness" of the field?

CM: I think that certainly helped. I could point to a number of key coincidences in my life with any one of which... I'm sure this is true of everybody's life if you think about it, you know that's what determined the way things have worked out for me and I've been very fortunate in that respect. I still don't think it's impossible. I think that it would be possible for somebody say through the NAS training scheme, if they really had that singleness of purpose, if they were really determined to do it, they were prepared to overcome all the odds, etc. Maybe this is what one generation always says about the next generation, but I did see more of that in the 60s, in my young days so to speak than I see now. People desperately want to do things but they sort of want to be helped at every step along the way. Somebody else has got to sort of make the input. And at the bottom line I think that in this game its individual survival and its individual determination, really, that's going to bring people up, and I would love to see people doing that. I would love, love, love to see that happening. But we live in a different society and maybe it harder to do that than it was. I get the feeling that it was easier to live on very little in the 60s than it is now. But it shouldn't be different because there is an inflation component just the same.

GD: OK, I think that's it for this session, thank you very much.

552 [END SESSION 1]

III (b)

TAPED INTERVEW #2 WITH DR. COLIN MARTIN
CONDUCTED ON 21 OCTOBER, 1998
BY
GLENN DARRINGTON

GD: It is Wednesday, May 5th at 11:10 am. This is interview number 2 with Colin Martin... Colin in our last interview you had talked about your background and how you became an archaeologist, what were some of your influences. In this discussion I would like to deal more with your personal approach towards archaeology and your personal development over the years, from your earliest projects with the *Santa Maria de la Rosa* up until Duart [Point Wreck]. In fact, using those two as what were the main differences between those two projects. How have you improved from the early days?

CM: Well, I think to some extent that summarizes the evolution of my own developmental processes [telephone ring disruption]....

GD: Back to talking about the development, your personal development, from the early projects up to Duart.

CM: Yes, as I said I think it follows very much the way the discipline itself has been developing. On a personal level Duart has been a very exciting project for me, not least because it is the only project in my life that has been properly funded. So it's not just a question of knowing what to do, I hope, but of being adequately funded to do it.

GD: In the early project, the Santa Maria de la Rosa, was that all volunteer labor, there was no funding, no grants?

CM: That's right, it was just everybody doing what they wanted. Syd Wignall, I won't go through his background again, I'm sure I did in the first interview, but he paid the basic costs out of his own, very remarkable pocket, and approached things very idiosyncratically, but there he was and he wanted to do, certainly very much

by the lights of the time, very much the right thing. And the rest of us were volunteers and we somehow managed to struggle through the summers, and made our livings during the winter, and so on and so forth. It was totally unstructured in a professional sense.

GD: What other differences besides funding do you think have...

CM: I think that the biggest single difference, certainly as far as an archaeological perspective is concerned, is that although we were not treasure hunters, I don't think even by modern description of that, we were certainly looking for recoveries. We were looking to identify and raise things so that we could write about them and report on them, etc., so we were very much excavation minded. Where as now, rightly in my view, the emphasis for archaeologists has swung not away from excavation, but is looking more circumspect on projects involving excavation.

GD: Over the years what has been your biggest regret in terms of doing archaeology, or a failure, or something that when you look back makes you wince?

CM: I think, again this is something we may have covered in the first interview, but I think it's the fact that archaeology underwater, particularly shipwreck archaeology, has not obtained an appropriate integration with the wider discipline. I think that is almost more so today in a funny way, than it was 30 years ago. I'm also a little concerned that some of what I regard at any rate, the fundamental purposes of archaeology have become overwhelmed by an over emphasis on methodology, scientific technique, and so forth, which is not to say that I feel methodology and science technique is unimportant, quite the reverse, but I feel that

the underlying goals and aims of archaeology should be the driving force, not necessarily the nature of the techniques available. I think that's something, which, again has probably degenerated rather than evolved over the past 30 years. We were very naive 30 years ago but we were driven by a kind of enthusiasm for the human past and how it could be reconstituted from the remains of ships on the seabed. And I get the feeling that in some ways it is becoming less of a driving force in archaeology, and I don't think it should be. I think archaeology without the humanism is a sterile exercise. There really isn't any valid justification for it at all.

GD: One of the things that seem to have changed is in the way that we dive on sites, in terms of health and safety regulations.

CM: Yes.

GD: Can you talk a little bit about that in terms of how was it in the early days when you had to dive with what equipment and what procedures, and what now you're having to do at Duart.

CM: Well, that's a very loaded question, but a very interesting one. Perhaps I should, very briefly, explain my diving career as opposed to my archaeological one. As I'm sure I mentioned earlier, I learned to dive with the Army in Cyprus in 1959 I think it would be. Very much as an amateur diver and I worked as an amateur diver all the way through to the end of my first career in diving, in the early to mid 80s. Effectively the diving was unregulated, we just did it. And from an operational point of view, particularly in the 70s and 80s, we developed a surface supply system, a simple HOOKA type of system, which was minimalist in

terms of the gear, and I believe it was very safe but certainly we had no safety problems over quite a long diving career. Then I stopped diving and I didn't get back into diving for another decade or so when Duart cropped up. In the interim the heavy hand, you might say, of regulation had descended in a big way. In Britain it was of course the Health and Safety Executive and we could no longer operate on the ad hoc, minimalist way that we had always worked. And so I was thrown in, very literally into the deep end. Required at a fairly advanced age to do a full commercial diver training and thereafter to operate to the very very different regulations that pertain under the Health and Safety Executive. This has made things in many ways more complicated. It certainly made them much more expensive and those might be seen as downsides in allowing more people to engage in underwater archaeology and so forth. However from my particular perspective, that's a wider argument, but from my particular perspective on balance the new techniques have been helpful. I am still ambivalent about how much safer the diving is because we are now equipped in a more high-tec way. We've got much more redundancy of equipment, much more complexity. Three different safety systems in our current suite of equipment that we operate at Duart. I personally think that is in some respects a retrograde step, by making things more redundant with back-up systems, you introduce more complexities so in a real emergency situation as opposed to a training situation or an emergency drill situation, I think the potential for confusion and getting all three systems wrong probably outweighs the safety of the really simple system which has no back-up in the conventional HSC [Health and Safety Code] sense, but which is so dead simple

that, you know you get out of the water and onto the surface..[telephone interruption]

GD: We were talking about what role the changes in equipment had over the year....

CM: And what I was saying is basically it is a bit of a pain, it's very cumbersome and its very expensive, but having said that there are aspects of it, particularly the communications, which is archaeologically extremely helpful. Having worked now for a couple of seasons where the archaeologists on the seabed talk to one another and talk to the surface, the surface can talk to us, it makes a lot of the archaeological work a great deal more straightforward. And this summer, we are going to be working doing a sort of excavation of a quite complex organic deposit, and we're going to have to deal with very fragile material in some quantity and in sort of complex arrangement of deposition. So as we work on the seabed we will be able to ask for various bits of equipment, containers of particular dimensions and so forth, as the work is progressing so we can deal with these situations as they arise. We can be much more flexible being talking archaeologists as opposed to archaeologists frantically scribbling messages to one another on pads or trying to signal complex ideas, etc.

GD: Do you feel that the equipment and the health and safety regulations are actually creating barriers to a lot of professional archaeologists because you tend to be an archaeologist first, a diver second and if the diving gets to be too cumbersome, too complex, then we will tend to shy away from it?

CM: I think this is a big worry. No one is suggesting that diving should be made more dangerous in order to accommodate cheaper archaeology. But at the same time I think we can go too far in the other direction. I think there is a worry, for instance the problem of involving students, amateurs, etc., particularly when working with "professional" teams to HSC type of regulations. Now theoretically it is possible to do this, but the practice is such that in most instances that I have observed the regulations, one could argue, out of necessity are being bent in order to accommodate the realities of situations. And that's a bad thing. You shouldn't bend regulations, you shouldn't be put in a position where there is a sort of strong pressure to do so. I think there needs to be a re-think. There are moral issues here. I think it's unrealistic to try to remove all risk from human activity. I also think that it is sometimes counter-productive to try and do so because for most sensible people the greatest safety factor is his or her own common sense and will to survive. And I think if you try to take too much of that away you don't necessarily make the environment safer for people to work in you just make the regulations, those who frame the regulations, you allow them to cover their backs in course of a fatal accident. I think there is a danger here. I'm not putting this very well but I think common sense should prevail more than it sometimes seems to. Having said that we clearly live in a more regulatory and legislative, litigious age and perhaps this is just one of the ways society is going more widely. Much as we would like to opt out we probably don't have the option.

GD: There seems to be the perception of a lack of professional archaeologists, and when I say professional archaeologists I mean individuals who that is there

primary job. They're not doing it on weekends; they're not doing it as a hobby. How they make a living is through archaeology. Actually doing underwater archaeology in Britain, Duart Point being one of the only examples I can think of off-hand where a professional archaeologist is running it and directing it.

CM: And even that, it's very much a part-time job that's fitted into summer vacations and so forth. It's still not a... it's not really what I'm paid to do. It's a legitimate part of my job as research but I'm not professional in that sense. Indeed I would like to consider myself an amateur in the Duart Project. I'm doing it because I want to do it, I think it's worth doing, and I do it for the kick I get out of doing it. And in my mind that's the definition of an amateur.

GD: Do you think that there is a lack of academic archaeologists pursuing work underwater in the UK, and if so, what are the reasons?

CM: I think there is. The reasons are mainly financial, also the lack of a career structure. Indeed it's difficult to envisage a career structure that does employ people as full-time professional underwater archaeologists. I think if there were more underwater archaeological work going on it would clearly be a good thing. It would be better I think to see a wider cadre of so-called "conventional" archaeologists who were able to dive where required to do so. So it becomes instead of a specialization, it become an ancillary skill that a career archaeologist could deploy as appropriate. You would have more flexibility. If there were an archaeological job to be done and it's on dry land so therefore you apply the appropriate methods. That same archaeologists might be on another contract or whatever, that involved underwater work, so you simply go to another store and

draw out another set of equipment. Perhaps that's idealistic because obviously learning to dive is a commitment of such and such a time, expense, aptitude, etc. but I think its not unrealistic to see at least a smallish proportion of the archaeological profession as a whole having that additional skill that would be employed as required. And that would be part of my wider argument for integrating archaeology more fully and not seeing underwater archaeology as something very different. Having said that, although we are more regulated and more training is required, more complex equipment, etc., it's no big deal to learn how to be a diver if you have the underlying aptitude for it. The courses are not particularly long, they're not particularly arduous, so that a keen young archaeologist setting out on his or her career it wouldn't be that much of an investment of time and money to have that additional skill to their portfolios. That is what I would like to see, more people who can dive and do so when it is appropriate to do so, rather than the special elite profession of underwater archaeologists.

GD: That is the biggest barrier, the perception of special expertise that you need to be an underwater archaeologist, not that you are an archaeologist first and diving is just something you learn.

CM: Its not as simple as that, I mean there are practical problems that anybody who was a diving archaeologist would have to keep in qualification, would have to keep in practice. You couldn't say I've got this ability, so maybe 10 years down the road maybe something will turn up and I need it. You would have to be more active than that, otherwise the skill would die from lack of use.

GD: In terms of amateurs, when I was traveling with the ADU it seemed that at every site we were visiting the people we contacted were these amateur groups and sport diving clubs. They were interested in doing it on the weekends; this wasn't there primary responsibility. Why do you think there is so much amateur interest in the field? Is it because it's easier for them to dive and do the work, or is there something else that is facilitating their involvement?

CM: There are a lot of amateur divers around. It's a very popular sport and it is inevitable that a lot of amateur divers are interested in what's on the bottom of the ocean. One of those interesting things, a category of those interesting things, is shipwrecks. So they get involved, very naturally. Some of them choose to get very seriously involved, a particular wreck, a particular situation really catches their interest, their imaginations, their commitment. The best of them, in terms of the commitment and recognition of the skills that have to be acquired in order to pursue the project, do work that is of as high a standard as anyone else. It is not in itself mitigation against doing good work to be an amateur. In fact, a really good amateur can often run rings around the professional in all sorts of ways. But is also means a whole lot of unstructured and perhaps ill guided work goes on. There is an essential difference between amateur divers and archaeology underwater and amateur archaeologists on land because the amateur archaeologists are primarily interested in archaeology. That's how they got into the projects they do. Where as the amateur diver almost invariably is an amateur diver, and the archaeology becomes an adjunct, a sort of bolt on extra. So the same level of commitment and

206 understanding of the archaeological process often is not present in the amateur
207 diver work compared to the amateur archaeologist work on land.
208 **GD:** In terms of the role of the NAS, you have stated that it is a very positive and a
209 very good thing, however, do you see any down sides to the NAS training scheme
210 and how it applies to archaeology, and how it relates to amateurs and the general
211 sport diving community?
212 **CM:** Yes, I have nothing but praise for the NAS training scheme. It can be
213 misused. If you get an NAS Part I, II, or whatever, it means a great deal. It means
214 you have acquired certain skills and an understanding of archaeological principles
215 and ethics and so forth, but like all qualifications, they do not in themselves make
216 you competent to do a particular project. To do that you need to address the
217 project and the required skills on their own terms. I think there's always a danger
218 when you produce a qualification scheme saying "I've got the ticket, therefore I am
219 qualified to do X, Y, or Z." It can be dangerous. It is something that needs to be
220 watched. But having said that, the whole purpose of having such training schemes
221 are to provide a foundation upon which further understanding, experience, and
222 skills can be built on so that they may be directed towards particular projects and
223 so individual and group skills and competencies continue to improve through
224 practice, through development. That of course applies to all of us, not just amateur
225 divers. I think anyone who thinks they know all the answers just because they
226 have done a particular course needs to be treated with no trust whatsoever.
227 **GD:** Do you know of anyone who has completed the higher training courses of the
228 NAS, the Part III or IV?

CM: I think there are one or two Part III around, as far as I'm aware, a Part IV has never happened. I think the reason why a Part IV has never happened is because the commitment, and indeed the expense, of getting a Part IV would be broadly equivalent to doing a program such as the one we offer here [University of St. Andrews] and other places that offer post-graduate degrees of various kinds in maritime archaeology. So I think most people who are that committed are most likely to go to university post-graduate course rather than do the NAS Part IV.

GD: Now I'd like to talk a little bit about your views towards archaeology as a science or as history, a more humanistic kind of endeavor. What is your view, is archaeology a science?

CM: Well, I don't think it is, and I've engaged in all manner of debate on this topic with people in the past. In a sense it's not really a debate, it all has to do with semantics and meaning. My very strongly held view would be that archaeology is to do with an attempt to reconstruct aspects of the human past, human behavior in the past, and material culture, and so on. As such it is essentially humanistic, and as chaotic and irrational as human beings are as we see them today and as we know from our own lives. So in that sense it is the study of past humans by present humans trying to forge some kind of understand between them, no matter how imperfect. In that sense it is a humanity, it is trying to get at these irrational beings we call our fellow human beings in the past. In that sense it cant' be a science, it can't establish absolute truths in the way that a proper science should do, basic laws of the universe, etc... However, in seeking to obtain this understanding, this move towards this understanding of the human past, all manner of approaches are

appropriate. There are the obvious humanistic ones, documentary sources and the more subjective examination of artifacts and structures, possibly more than subjective. Together with that you have many approaches that are entirely scientific in their character. Many of the dating techniques, of course, and more and more environmental techniques, looking at bones and other evidence of that kind, all of this no one would deny is pure or applied science of a whole range of forms which it is entirely appropriate for the archaeologist to use, indeed the archaeologist would be in severe dereliction of duty if these powerful scientific tools were not brought to bear on the investigation. But that does not make the archaeology or the underlying goals of the archaeology a science, and I would rather characterize this discipline as not really a single subject, but as a kind of management procedure, whereby a whole range of approaches without restrictional limitations, there is nothing you should not use to try and get more out of the archaeological evidence you are dealing with. So I would see archaeology not really as an academic discipline, per se, but as a kind of management structure, which integrates and properly directs the application of all approaches of whatever kind, towards a final, essentially humanistic goal. That concludes my rather long-winded views on archaeology and science.

GD:[SECTION OMITTED BY INTERVIEWER] Are we training underwater archaeologists the way we should be...[END OF TAPE, SIDE ONE]

[BEGIN SIDE TWO]

CM: I'll begin again. I don't think we've particularly failed budding underwater archaeologists in any very specific way. I think all of us could have done better in

a whole range of ways but that's part of the human condition. I think in a more general sense the academic world has been failing modern students by not giving enough attention to absolutely basic, fundamental intellectual skills. These are primarily skills of literacy, exposition, recording observation, etc. I'm not trying to sound old fashioned that the old ways are the best, what I'm trying to say is that unless we start off from a basis of being able to look at things, draw conclusions from them, and then convey those conclusions unambiguously; conclusions, ideas, data of various kinds, unambiguously in words, pictures, drawn or photographed. Unless those skills are honed to a very high level then people are not going to be empowered to use all the new things, all the new methodologies, approaches, scientific techniques, which could give so great an insight to various aspects of the past if they were underpinned by those more traditional skills. Skills of communication. I mean we are getting at the absolute fundamentals of the human condition. The reason why we are different from other species is that we can communicate and so communication is the most basic and fundamental of any skill for any discipline in the human world, therefore these should be given far more importance and emphasis than they seem to have been given, we're talking basic literacy, exposition, etc. which is not generally good. A lot of people think, "I don't need to know about that kind of thing because I doing all this important work, I've got all these wonderful scientific techniques." But it's not true.

GD: We've gotten away from the basics.

CM: We have gotten away from the basics. Let me make another point. I know it would be possible to record a pot or any other artifact by purely electronic means.

You could have a thing rotating on a table and a laser hits it and it [the image] goes into a program and at the press of a button you would have an objectively more accurate record of that artifact than you would ever achieve by going through the processes of traditional archaeological drawing. However, it has been my experience that one the most powerful tools in acquainting the archaeologists with an artifact or structure or whatever, is the physical process of recording it. It not just that you are making a record that goes into the publication, you're going through an exercise which forces you to focus the whole of your attention on the aspects and attributes of the artifact in a way you could never do by just sitting and looking at a pot for three hours trying to understand every nuance of it in reality. But if you draw it you're doing exactly that, so along with the drawing you come away with this understanding, you may have recognized nuances that subsequent thought.... this comes back to essentially.... I think good humanistic study is chaotic within a tight framework. It's out of that chaos within the framework that you actually see the things and draw the conclusions that are valid. There is a bit of dichotomy there I know, but I hope that makes the point.

GD: For you personally, what is it about archaeology that you enjoy the most? Also, what are the things you hate?

CM: Doing archaeology underwater, I think what I like best is the recording process, and those particular moments in the recording process when you begin to see things that you haven't seen before. You begin to... I'll give you a case in point, we recently recovered this mariner's compass from the Duart Point Wreck, and it became clear that it was covered in cloth. And then all sorts of questions

arose, why was it covered in cloth? Why is the bottom not fixed into the compass? Why did they have to be able to take this cloth sleeve off and take the bottom out of the compass? And then you start to think "Well, yes, the compass wasn't permanently magnetized and it had to be re-activated with a loadstone and of course it had to be taken apart." Its hermetic seals had to be broken. And all that started to come together as we were systematically photographing it, macro-photograph of the cloth weave, etc. All that kind of stuff. But then the thought process comes in. Then you start looking at the documents, and you see this isn't directly covered but you find examples of compasses being sent away to have something done to them, it's not clear in the documents what is being done on a yearly basis. And then the two things come together. The compass is being sent away to be reactivated, it's arranged like we've seen it arranged on the wreck and we've identified these fragments of cloth associated with it, and it all comes together and you begin to piece together something that people hadn't known before. Those are the sorts of moments that are the good moments. You can't really define them, they're not blinding flashes, and they're the developing and understanding of things through physical contact with them and the recording process. Very easy question, the down side of underwater archaeology is when equipment breaks. One of the advantages of having adequate resources, like what we have at Duart, is that we can take as much proactive action to minimize things going wrong. Proper servicing, proper operating procedures, etc. I have noted with a lot of teams a very cavalier attitude towards equipment, which is not only foolish in safety terms, but it is also potentially very unproductive in

archaeological terms. I find that as I grow older I take the archaeology ever more seriously. I don't mean in terms of the archaeological principles, but the actual practicalities of carrying it out. In a sense I suppose it is becoming more precious to me. I just don't want things to go wrong. I'm prepared to do an awful lot to mitigate the chances of things not working properly on the day. I have noticed a considerable number of people who have a cavalier approach.

[LAST SECTION OF TAPE OMITTED BY INTERVIEWER]

IV

TAPED INTERVIEW WITH RICHARD STEFFY

CONDUCTED ON 15 JANUARY, 1999

BY

GLENN DARRINGTON

GD: Taped telephone interview with Mr. Steffy on January the 15th, at approximately 2:30 p.m.

RS: Hello.

GD: Mr. Steffy, its Glenn Darrington.

RS: Hi Glenn, how're you doing?

GD: I'm doing fine, how are you?

RS: OK, I guess.

GD: Am I getting through all right, I'm using a speakerphone?

RS: Yeah, I can hear you.

GD: Great. The reason I'm using the speakerphone is so I can tape our interview for my dissertation research. I'll then be transcribing the interview and it will be kept at the University of St. Andrews.

RS: What is your dissertation about?

GD: I'm looking into the development of the field of underwater archaeology, specifically since the 1960s and 1950s. Basically the developments since George Bass started.

RS: That's a good idea, because we now have a history.

GD: What I'd like to get from you first is how you became involved in the field.

RS: Well, its kind of boring but here goes. I had always been interested in ship construction. I remember I won a third grade art exhibit with ship models. I was just always fascinated by ships, especially wooden ones, and there was no such field at that time, there was no SCUBA diving or anything like that, so I built a lot of ship models when I was younger. I had my own electrical contracting business, where I was a partner in an electrical contracting business, and studying ship construction was just an expensive hobby. I had volunteered at a bunch of maritime museums and stuff like that, but mostly I just built models at home. Then one day I read in National Geographic magazine that George... well it was an

article written by George Bass on the excavation of the Yassi Ada Byzantine ship, the seventh century ship, and it was really fascinating. He talked about how they were using SCUBA gear and it kind of got me excited because I saw terrific possibilities for looking at ancient ship construction, which had always puzzled me, but there was no way of... there wasn't much written about it. So I went to see George because I had more questions than answers from the article. I lived in Pennsylvania Dutch country in those days, I was only 60 miles from George and I went down to the University of Pennsylvania and saw him. Well, to make a long story short, I suggested models to maybe learn more about the timbers they found down there, as research tools. George put me in touch with Fred [van Doorninck] and we've been together ever since.

GD: So who would you say was your biggest influence, would it be George Bass?

RS: Definitely. I was intrigued with the fact that Fred van Doorninck was attempting to reconstruct the hull, he was doing it graphically you see, but what he was coming up with didn't quite follow the laws of physics, so we got to playing with models. Anyway, we all got to be buddies. I think that was in 1963 or 1964, 1963 I think it was when George published that article. I know since 1964 I've been going to Penn [University of Pennsylvania] and I've been at least loosely associated with George, but I stayed in business, I only did this [model building] on a volunteer basis.

GD: Was the Kyrenia wreck your first big project?

RS: Yes, the Kyrenia wreck. Like I said, I was going along volunteering, I would give a lecture or two to George's graduate classes and stuff like that, but I was still in business. But then Michael Katsev gave a lecture on the Kyrenia ship. I belonged to the AIA [American Institute of Archaeology], the local chapter in Lancaster Pennsylvania at F&M College, and I went to hear Michael. I had met Michael once; he was a graduate student of George's at Penn. He was in his

second year of excavation or so; I don't know when that was, 1969 or 1970. Anyway he invited me to come to Kyrenia. He knew about me because I was at Penn. every now and then. Well, we sat up all night that night just talking about this Kyrenia ship and I was so fascinated by it when I got over there that, eventually I got out of business and went over there to assemble it full time. And that was the start of it professionally.

GD: One of the things that I'm interested in, as part of my research, is some of the failures that researchers had to face early in the development of the field. What were some of the problems you faced and what were some of the failures?

RS: Well, we were always re-working things. I don't know of any project that we worked on, except the most simple ones, where we did it perfectly from the start. For instance, on the Yassi Ada ship it's time for a re-study of that because we simply didn't know as much in the 1960s about the Byzantine ships, or any kind of ancient ships. So we built a lot of models trying to answer all the questions. But as we say in that book [Yassi Ada research report] we're a long way from having all the solutions to that hull construction. So none of it is a howling success, we're just learning a little bit at a time. When I worked in Kyrenia I tore things down and redid them a number of times, both in models and in the actual reassembly. I think that's standard in our field. On the Serce Limani hull, I first published that with a rockered keel, because that's the way the keel went together. But it had been setting on a ledge, we found out later, a rock ledge, and that distorted the bottom of the hull after it had sunk. So we had to partially reassemble the pieces in the museum before the ship would tell us what we were doing wrong, so we went back and did it right. But by then we had already published a preliminary article and preliminary sketches with the rockered keel. Of course, I had to eat crow and say I was wrong in later publications, where I showed the correct hull lines and keel alignment. This is pretty well par for the course, especially when

you have sparsely preserved wrecks like the Yassi Ada ship and the Serce Limani hull. Serce Limani has about 20% of the original hull.

GD: How are the other people who do reconstruction, besides yourself, that you would collaborate with? Were you the only one doing this sort of thing or were there others?

RS: Actually, while I was doing Kyrenia Ole Crumlin-Pedersen was putting together the Roskilde Ships. But neither of us knew about the other one. Our publications hadn't come out yet. They had an early publication on the Viking hulls, but it didn't say they were building them at the time. When I was in England, my family was going back to the States, I heard about Ole's work so I went right on up, I was in London at the time, I went on up to Roskilde, met them, and we've been friends ever since. That was 1972 or so. And then we compared notes, but we were so far along and our ships were so totally different that our work didn't relate. You know, lap strake versus mortise and tenon joinery isn't even close. But it's interesting how we were using some of the same techniques, the steel scaffold supports and things like that; we had come up with the same solutions to a lot of things.

GD: What would you characterize as your greatest success? Would it be the reconstruction of the Kyrenia vessel?

RS: I think so, just because I use that ship... that was when I really started learning about ancient ship construction and I learned the research techniques also. I had 18 research models I used on that project. I think I started feeling comfortable with that ship, so I do consider it my greatest success. Although I really learned on the 7th century ship.

GD: Are you please with how the field has developed, in terms of ship reconstruction, especially in terms of the students you have taught?

RS: Yes, very much. I was at a conference in Lisbon this summer, it was on Post-medieval ships, and there was Roger Smith, Peggy Leshikar, Tom Oertling, and... I think there were seven of my former students there. And they gave marvelous papers, all of them. I was kind of feeling pretty good about that. I hear them at various conferences and a lot of them are doing a good job. Now most of my students did not get into reconstruction, while others specialized in a variety of ship-related disciplines. Take Sheila Mathews in Bodrum, she's doing a marvelous job over there in the field as well as in the museum.

GD: What do you see happening in the future of the field, especially in terms of technology such as computer graphics and special materials to help in reconstruction?

RS: Actually, that is what I'm playing around with in my retirement. I'm doing a re-study of the Kyrenia ship right now, which I expect to publish when it is complete. I'm building databases for these studies and as I told you a while back we should probably go back and re-study the Yassi Ada hull, although we only had 10% of that. Back in those days we didn't even know what to record even, so I don't know how much re-study on the Yassi Ada hull. It's going very well, the French are doing marvelous work with some of their new techniques and mostly it involves doing better work with graphics, things like that. Databases, computer databases are going to tell us a lot more, and we are just starting to build those now. I know several people who are building computer databases. [SHORT SECTION OMITTED BY INTERVIEWER] I think we are a very up-to-date field and we are keeping up with it.

GD: Has there been a lot of change over the last 30 years?

RS: Well, the recording gets better all the time because people are using the same ship terminology. There are no longer any notations about "do-dades" and things like that anymore. Today people know what a keel is, and a frame, and a plank,

and things like that, so the recording is much more refined these days. And they also know what to record and they're looking at things like tool marks and nail holes and stuff like that. That was overlooked a lot in the early years simply because we didn't know what was important. People are looking at different types of hull construction, all that sort of thing. It's been refined considerably.

GD: Do you think, in the early days, people were not very familiar with the proper use of nautical terms for the different parts of a ship and that created a roadblock, which has now been resolved?

RS: Of course. Of course. And that applies to anything, not just ships. What was good about those early people was that they were good archaeologists and so they recorded well. The Kyrenia ship, for instance, is recorded extremely well. Now that I'm doing a re-study of it I'm amazed at how good a job they did on recording that. And so the fact that they recorded them even though they didn't have the technology, at least we can go back and see what they saw. That helps a lot. Now there were certain things that they didn't know what to look for. Lacing holes, in some cases in the old days, got recorded as wormholes, things like that. At least where there were good archaeologists on the projects we can go back and re-study them now.

GD: What do you think is the biggest problem facing ship reconstruction today?

RS: Probably money. Financing. You know the well-preserved ships, it costs a bundle to conserve them and put them in museums, so a lot of them have to be left on the seabed. Even to properly open up and record a hull is very expensive. So a lot of ships are just looked at on the bottom and then covered up again and that's that, so they never get a chance to see what's on the bottom side of the hull. That sort of thing.

GD: I think that is all the questions I had for you. Thank you very much.

[END OF INTERVIEW]

V

TAPED INTERVIEW WITH GREG STEMM

CONDUCTED ON 10 DECEMBER, 1999

BY

GLENN DARRINGTON

Interview [telephone] with Greg Stemm, being conducted on December 10th, 1999, at approximately 2:30 p.m. [break]

GS: Greg Stem.

GD: Yeah, Greg this is Glenn Darrington calling from Scotland.

GS: Oh, hi Glenn, how are you doing?

GD: Pretty good, how are you?

GS: Very very good today, you're right on time.

GD: I try to be punctual. I'm not going to take up too much of your time, I know you're pretty busy...

GS: You don't sound like a Brit, are you an American?

GD: Yes, I'm from the States.

GS: OK, it sounded like that; otherwise you slipped into your U.S. slang pretty quickly.

GD: That's right. I've picked up a few words of Scottish and British, but they can still tell that I'm an American whenever I open my mouth.

GS: I remember... Where are you, in Edinburgh?

GD: No, actually I'm in St. Andrews.

GS: St. Andrews, OK. I remember when we were up in Scotland about a year about 3 years ago now, God how time flies, and we were at a gas station way up north by Aberdeen in the middle of nowhere, and this gas station attendant came out and I swear I couldn't understand a word he said.

GD: I know.

GS: It's like another language, it sounds like Japanese.

GD: Yeah, it's laced with a lot of Gaelic phases. And even British English, there are a lot of different phases there that I just shake my head at. I have no clue to what they are saying.

GS: How are you doing up there?

GD: Good, good, I'm in the final stages of my Ph.D. research. Colin Martin is my supervisor and he's actually the one who suggested I do a kind of history on underwater archaeology, a recent history, just the last 30 or 40 years, some of the developments that have happened. A lot of the founders, people like Peter Throckmorton and other, have passed away, so it's a good time to. Now is a cross roads, a lot of interesting things are happening, which is one of the reasons I really wanted to talk to you because in my mind you represent a middle ground in the debate between academic archaeologists and professional salvors and the treasure hunting segment of it. When I say treasure hunting I have no negative connotations about that. I'm trying to do my research as an objective observer. So that is kind of where I'm coming from. I terms of my background, just so you know, I did go to the Texas A&M program where I got my master's. Donny Hamilton was my supervisor.

GS: Donny is a fairly wide-open and open-minded guy.

GD: He is.

GS: I've admired him a lot over the years, and I think he really has his head on straight.

GD: Yeah, he's a "good old boy" so that was one of the reasons why we sort of clicked. The benefit of me coming to St. Andrews was that it has given me a fresh perspective on the field as a whole. Underwater archaeology here in Britain is very different than what is happening in the United States. So again, I felt that I was in a good position to do this research. If we can get started, If you could describe your background a little bit, and how you got into becoming a commercial archaeologist.

GS: One of the things ... You know what I would like to do, something that might make some sense for you, have you read any of the papers that I've done?

GD: No, I haven't.

GS: There are a couple papers I could send to you, in fact I could e-mail them to you really quickly, that would... one for the Law of the Sea Convention, Law of the Sea Institute's convention a year and a half ago, there are two papers I could send to you right now that would give you a lot of background on what I'm thinking about these days. If you would take the time to read those it would give you a great framework from which we could talk.

GD: OK

GS: Do you have any problem with that?

GD: No, I have no problem with that whatsoever.

GS: Glenn, I've got your e-mail address here, what I'm going to do, are you on e-mail right now?

GD: No, I'm actually using the speakerphone of my landlady, Mrs. Grace, so I'm not in front of my computer. But I can get to it quickly.

GS: Let me do this, let me e-mail these to you right now, and then once you get those, I'll be around here all day today.

GD: OK

They outline a lot of my theories, things I've been thinking about, and they put them into much more concise terms than I could ramble on about right now. They would give you some very specific starting points for asking me questions to clarify some of the issues

GD: OK

GS: OK

GD: Sounds great.

GS: I'll mail them to you right now, you should have them in the next 10 or 15 minutes and then I'll be around all day today.

GD: OK, what I'll do is try to call you back in about an hour and a half?

GS: Let's see, an hour and a half would technically be about lunchtime, I would make it two and a half hours and I'll be back from lunch.

GD: Sounds great.

GS: All right Glenn.

GD: Thanks a lot Greg.

GS: Bye.

GD: Bye

[BREAK - CALLED BACK AT APPROXIMATELY 6:15 PM]

GS: Greg Stemm.

GD: Yeah, Greg its Glenn Darrington calling back.

GS: Hi.

GD: Thanks for sending those e-mails, they were very helpful.

GS: Good, I thought so. I thought that would probably take the place of probably about an hour of discussion.

GD: Also Greg, I just want to let you know that I am tape recording our conversation.

GS: OK.

GD: What I'm doing is that I am transcribing the interviews that I do and they are going to be included in a separate volume of my dissertation that will be maintained at the University of St. Andrews.

GS: Are you transcribing the entire conversation?

GD: Well, if there is anything you want to say off the record let me know and I'll turn the tape off. That has happened in a few interviews, like when I interviewed George Bass, there were a few things he wanted to say off record.

GS: Well, not only that but I want the right to review that transcript before you submit it.

GD: You bet, I'll send you a copy and then you can make whatever omissions you want on that.

GS: I've done this way too many times. In fact if you were not going to tape it I was going to do it. I typically record my own conversations when its with the media, especially, because I've been misquoted too many times, or things were taken out of context, or it just doesn't make any sense and sometimes your pauses and the way you construct a sentence don't come across quite the same. And certainly sarcasm never comes across the same.

GD: That's true.

GS: But as long as you're guaranteeing that you will let me take a look at it beforehand I don't have any problems with that.

GD: Definitely. Also Greg I wanted to ask you about the one article you sent, Protection of Our Underwater Cultural Heritage.

GS: Right.

GD: Do you have a full reference for that? In terms of the date of publication, or was that just a paper presented?

GS: It was from the Proceedings of the 31st Annual Law of the Sea Institute Conference.

GD: And that was 1998?

GS: March 1998.

GD: Great, and do you know who sponsored that?

GS: The Law of the Sea Institute at the University of Miami.

GD: Great. Like I said, I really enjoyed the articles and I was very impressed with the different arguments you gave. It is exactly what I need for my research in terms of presenting the other side of the coin. Could I just ask you, how did you get involved with ships and shipwrecks and underwater archaeology?

GS: I've been interested in archaeology, that is shipwreck archaeology, since I was a very young kid. Over the years, I think that like most young people that had an interest in archaeology or science during the 60s - I got a lot of data from National Geographic, because I read the exploits of George Bass and others. George was one of my very early heroes. I found myself very much attracted to marine archaeology. When I went to school there were no marine archaeology programs, so I majored in marine biology, which was about as close as I could get to monkeying about underwater. One thing led to another, and I ended up in a whole different field, I ended up in the advertising/marketing business through a series of coincidences. I built a pretty successful advertising agency. Can you hang on one second?

GD: OK. [Break]

GS: I built a relatively successful advertising agency that supported me in the manner in which I had hoped to become accustomed. Back in the mid 80s I started getting back into the maritime business. I had a charter boat down in Jamaica, and I was looking to put a charter boat into the Cayman Islands when I met a gentleman that told me about a research vessel that the University of North Carolina had for sale. It's kind of a long story but I ended up buying the research vessel, and getting into the remotely operated vehicle business. We had a large fleet of small ROVs and did a lot of work for the Coast Guard, the Navy, the EPA, and a lot of other government agencies. As a result of all the equipment that we had acquired and our ability to search for and recover things from the deep ocean, we were approached by a lot of shipwreck researchers who offered us a lot of different projects. One of the projects that was offered included information that came from a fisherman in the mid 60s who recovered an olive jar, or a couple of olive jars, from a site south of the Dry Tortugas. Well, I saw this as a great opportunity to explore the possibility of actually getting into the shipwreck

business, if you will. We took that data and went down and located what is now known as the Tortugas Shipwreck. At that point we found the first ever, deep ocean colonial shipwreck and we had to decide where to go with it. I actually traveled around the country talking to an awful lot of archaeologists at the time, and after doing quite a bit of research, we decided that we were going to attempt to do the world's first deep ocean archaeological excavation. We set about raising about 8 million dollars to go do that without knowing for sure what was on that shipwreck; but we knew that we would be breaking new ground by becoming the first people that had ever done this type of thing. If we could accomplish this, we would be clenching the position of the world experts in that field. We thought that there was a potential business, not unlike the salvage (or remediation) archaeology business on land, for doing deep ocean archaeological work. We undertook the Tortugas operation and over the course of two years we excavated about 17,000 artifacts from about 1,500 feet deep, carefully recording the x, y, z position of all the artifacts using the techniques that were developed with the help of the archaeologists that we were consulting at the time. It was trial and error, but I think that we did an exceptional job using robotics and actually showed that robotics, as they do in many other fields, can replace men working in the deep sea on archaeological excavations.

GD: Beside George Bass, who you mentioned earlier, who were some of the other people who along the way kind of encouraged you and influenced you?

GS: Peter Throckmorton was a big influence. He was very helpful. John Broadwater has always been very very helpful and given us a lot of positive feedback. Jim Miller and the folks at the State of Florida. I'm trying to think of whom else back in those early days.... It all runs together, there are so many people on the list of archaeologists that I talk to these days it is kind of hard to separate them. But those were the primary guys we talked to.

GD: Who were some of your critics in the early years and presently?

GS: Funny enough, one of our earliest critics was George Bass. When we first found the Tortugas site we were on the Today Show and they had set up a debate about whether we should, as a commercial company, have access to this shipwreck or not. At the last moment it was sort of sprung on me that it was going to be George Bass. Me against the father of underwater archaeology! With Bryant Gumbal moderating it. I spent about three days solid preparing for it. I had read all of Dr. Bass's testimony to congress, all of his books, and I sort of got a good feel for his position on a lot of the issues. We did a whole series of practice debates where I actually played George Bass and a really smart friend of mine who is a college professor here played me and we went back and forth. I took a really close look at his different positions and some of the logical flaws in some of his positions and ways to suggest alternative positions to some of the others. Well, George was in the studio when the time actually came and I was down on the dock with the sun in my eyes. I could hardly see, it was very disconcerting and uncomfortable for me. There was actually an article written about the debate, have you ever seen it?

GD: Yes, I did. I actually read where you won that argument.

GS: Well, I don't know about won it. I think what happened was that George was probably expecting another one of the typical treasure hunters who hadn't really considered the issues, nor thought through what they were going to be doing with the shipwreck site…the type that would argue, "we have the right to do whatever we want with this shipwreck because its ours and we found it".

The position that I took was just the opposite - that we don't have the right to do whatever we want with this shipwreck. The artifacts may belong to us, but in fact the data belongs to the public. We take that very seriously. Early on in the "debate" I suggested to Dr. Bass that we would welcome him and his team down to

join us…we would have loved to have had them involved with the project. At that point it sort of flipped Bryant Gumbal over to "Gee Dr. Bass, what's your problem? I don't really understand why you have a problem with these people. They are inviting you to join them, they are willing to put the money into it to make it work, what else do you want them to do?" So that was sort of my first encounter with him, but shortly thereafter I called him up and apologized. I said I really didn't intend to turn it into... I didn't intend the result that occurred. And I told him that when he was in Florida, we would love to have him come down and take a look at our operation. I think it was a year later, or not even that long, that George called up, said he was in Florida, and told me, "Look, I'd love to come by and take a look at what you guys have done." He came by, took a look at what we had accomplished, and at that point he invited me to come and lecture his students on what we were doing in deep ocean archaeological work. We developed a friendship and over the years he's been a really great source of information and inspiration.... he's shown me the fallacies in some of my own opinions on the issues. I'd like to think that I've given him some new ways to think about common ground between archaeologists and commercial explorers. It's been (at least from my standpoint), it's been a really great relationship. So he was one of the earlier detractors, but interestingly enough, I don't know of one archaeologist that was a detractor of that operation that ever came and looked at what we did or has seen what we did and continued to maintain that negative position.

GD: Who are some of your critics today?

GS: Well, there are a few people. I'll mention Paul Johnston for instance, and Dan Lenihan. While I personally like both of them and we can sit down and have a beer together, their position is that there is just no middle ground. There is a very firm line drawn in the sand and you just don't cross it. I remember there was a debate at an archaeological conference in Lisbon last year where I was a panelist. I was

241 talking about the problems with these big beam trawlers ripping apart sites and
242 making the point that commercial shipwreck recovery can be viewed as salvage
243 archaeology or remediation - not unlike what happens on land. Dan Lenihan stood
244 up and said, "that's all well and good Greg, but I'd rather see a beam trawler rip a
245 wreck to shreds than have it recovered by a commercial firm."
246 **GD:** Ouch.
247 **GS:** I said to him at that time "Dan, I don't have an answer for that. If that's the
248 way you feel then there is nothing I can do about it." Hang on one second. [Break]
249 I just had somebody walk into the office for a second, my niece and my brother. I
250 think there is a small slice of the archaeological community that have had really
251 really bad experiences with the treasure hunters of the past and, by the way, I have
252 just as big a problem with what some of these guys have done.
253 **GD:** Do you think there is a lot of misinformation-information out there about
254 what you do as opposed to the stereotypical treasure hunter?
255 **GS:** I think there is no doubt that there is a lot of misinformation out there. I
256 believe that is one of the biggest problem - it is so easy to generalize and pigeon
257 hole people. It's very easy to say, "These professional shipwreck explorer guys
258 are just the same as all the other treasure hunters that have ever been." I think that
259 is what happens. I can't tell you how many people have sat down and actually
260 looked at what we've done at the Tortugas site and said, "Gee! I guess we've had
261 this wrong; maybe there is a way we can work together on a project like that. We
262 don't have a problem with that." We find that with the exception of a few people
263 that have just dug a hole and stuck their heads in the sand, virtually every
264 archaeologist that I've spent time with or talked to can at least see that it makes
265 sense to try to work together.

GD: I have to agree that when I read the material you sent me it did make sense. There are a lot of advantages to your approach, but what do you feel is its biggest disadvantage?

GS: The biggest disadvantage to my approach is this: The two worlds are polarized right now, at least publicly. Most of the archaeologists who would privately sit down and tell me that we need to work together will publicly say, "No commercial access!" And by the same token some of the salvors, and I'm not talking about ProSea people necessarily, but a lot of the salvors out there who make their living trying to find shipwrecks, view the archaeological community as the satans who are trying to put them out of business and take food off of their table and out of their children's mouths. Both those positions are so firmly grounded in the experiences of these people that it's almost going to take a new generation of folks who don't have all this baggage in order to make this work. There is a lot of distrust there. Even in the best of business relationships, they are probably not going to work if you have distrust between the parties. I think getting by some of these old prejudices is going to be tough with the people who are currently out there. I've been lecturing quite a bit to students this last couple of years and what I find is that if I take most of the students who are in graduate programs right now and sit them down with the most progressive of the commercial salvors, like Bill Mathers, Henri Delauze and myself, we're almost exactly in the same place. But then you go back to people 15 years ago and you put George Bass in a room with Bob Marx, you know...

GD: It isn't going to happen.

GS: That's right, there's too much personal baggage. So I think it's going to be a generational change. I think that's the biggest barrier to this working.

GD: I've been asking this of all the people I interview because it is something that doesn't typically get published or we feel very uncomfortable talking about, but in

your previous projects, do you have any regrets, or things that if you had the chance of doing them over you would do it differently or improve upon?

GS: Nobody ever does it perfectly the first time. The important thing to ask yourself is, "What mistakes did I make and what can I learn from them?" For me, most of it is just simply technical. I wish that the database program that we used back in 1991 was more easily translatable into the software we use today. But that is the same problem that every academic archaeologist has as well. Given the technology we had available at the time, we conservative in our methods, anticipating that our project would be held up to a much higher level of scrutiny than would ever be applied to an academic project. As a result, I think we went way overboard in some cases. For example, when we would excavate, we would excavate one square meter at a time. The reason we did that is that we picked up all the individual artifacts that we could see, posting x, y, z position of each of those artifacts in the database; but after you pick up all the artifacts of course you have some sediment there. Rather than just using either a blower or using an air lift to move that sediment we had a filter system built on the ROVs so that everything bigger than the finest granules of sand would be deposited into this filter. When it got to the surface little pieces of artifacts, everything from seeds to small pearls and things like that ended up in that filter, which if anyone was using an airlift it would just been gone - because you can't see the stuff when you are diving. A lot of it is just way too small. So, not only did we do that, but also when it came to the surface we would sort through the filtered materials where we found a lot of the smallest pieces of the collection that were found. In fact, I think we have a several hundred-piece seed collection, which was quite unique. After we found all of the little artifacts in that filtered material, we actually boxed up that sediment and marked exactly which grid it came from. That sediment still sits in the lab in case one day someone has some other test they can run on the sediment and find

some other artifacts or something else they can learn from that sediment. Now I use that as an example to show how far overboard I think that we went. I don't know of many academic archaeological excavations that have gone so far as to save every bit of sediment that they recovered from the shipwreck site.

GD: On your previous projects, what would you estimate is the percentage of resources that you spent on archaeology?

GS: That's a really good question. It is very hard to say because it is hard to separate out good archaeological fieldwork from good offshore technique. When you are a good scientist I think that you work really hard to make sure that you save as much data as you can. Now I don't know if this is necessarily good archaeology or if it's good engineering or if its good science, but incrementally I don't think it was that much. We wanted to know the x, y, z [END OF SIDE 1 OF TAPE]

[BEGIN SIDE 2] position of every artifact we recovered, and to maintain great records of every minute of the excavation.

GS: Just a better overall record to help with everything from your publishing to even the eventual sale of artifacts if you're selling the trade goods. If you're selling one of your many gold bars, that gold bar will probably bring more money if you have a good picture of it in situ, and if you have data that ties it into the archaeological record. So it's hard to separate what differentiates good archaeology from good media, scientific, and marketing practice. Does that answer the question?

GD: Well, I don't want to press you too hard, but if there is any kind of a ballpark estimate..

GS: Let me put it to you differently. Rather than say what additional money was spent from an archaeological standpoint, let's say that if that was a site that was a modern day ship with a bunch of containers, just a bunch of junk that nobody cared

anything about it, the incremental cost of the positioning work that we did and for the care and recovery of the artifacts may have been an additional 25 percent maximum.

GD: OK. Does that include conservation costs after the recovery?

GS: Conservation costs after the recovery were overall.. I think we spent in the neighborhood of 3 to 4 million dollars on the overall project. Now I'd be surprised if we spent more than 2 to 3 hundred thousand dollars totally on conservation. Despite the fact that it is made out to be a big deal, it is just not that expensive.

GD: Greg, do you feel that it is cost effective to do this approach? Are people making money doing it?

GS: I don't know that anybody is making money doing it yet. I think the idea of legitimate commercial historical shipwreck exploration and excavation as a business is in its infancy. We're at the dawn of that field as a business. There may be, as I've mentioned in several of my papers, probably less than 50 shipwrecks in the entire world that justify the model that we're talking about. I think when it comes to finding those shipwrecks, companies like the Columbus America Group which did the Central America, or our own Cambridge Project, or our own Conception Project, I think there is very little doubt that those are going to work from a commercial standpoint and they will work to keep the cultural collection together. But again, it won't work for many more than 30 to 50 wrecks. After that though, we believe there is a long-term business potentially. There are two aspects of the long-term business for us. One, we think there is going to be a requirement for salvage archaeology in the deep ocean, not unlike salvage archaeology that takes place on land. Countries throughout the world are realizing that they have a tremendous underwater cultural heritage resource in deep water and we're already with three sovereign governments that we're talking to right now on sort of a consulting basis, trying to help them figure out what to do with those. Now we

may be no more than a salvage archaeologist in that case, who goes and does the recovery work strictly on a contract basis with these governments. We see there is a future business in that.

GD: You mention in your articles that there is a growing trend of salvors bringing archaeologists onboard. Do you have a feel for what percentage of the industry is actually involving archaeologists?

GS: I would say nearly 100 percent of the serious people. It's difficult because of this "serious" to "non-serious" where do.. what does that scale look like. I would say virtually everybody that is out there with significant budgets, you know ranging into the mid six figures, have built archaeologists and conservation, good conservation work into their budgets. Virtually everybody that I talk to, you might find the odd pirate, but they are so much of the fringe that they are not even pretending to be doing this as a business, other than perhaps to scam some investors.

GD: I think that is the problem we were talking about, the stereotype that when people think of... when archaeologists think of a treasure hunter they are thinking of those people.

GS: Right. Exactly, that is the problem with the stereotypes. I have the same problem with those guys that George Bass does, or Paul Johnston does.

GD: What would you need or what would you want from the archaeological community? If there are barriers, what barriers would you want removed?

GS: One of the things that is very difficult for us is identifying the standards we should be adhering to in our excavations. Who are you to deal with? When planning an excavation, should you be approaching it from a processual or a post-processual standpoint? You sit down and talk to one group who want to see a detailed research design and see the entire thing mapped out. Then you see another group that says well you can do that if you want but once you get into it,

this research design is just a basic guideline but make no mistake you're going to have to move way outside that research design because how can you plan something until you know what you've got there. Then you've got a whole other group that says well look leave it all down there, take a very small sample of it and we can analyze everything we need to know from an archaeological standpoint from that small fraction of the artifacts. Then you have a whole other group that says don't start it unless you're going to bring the entire artifact collection up because now you've told people where it is and you need to get it all up here because how can you analyze the entire collection if you don't have it on land. So once you sit down and really try to lay out the parameters for the archaeological aspects of a project you're faced with these conflicting opinions as to how you should be running the operation. It would be very nice to see a standardized framework for us to look at.

GD: So basically you're saying you want good consistent advice.

GS: Yes, and I'm sure from where you sit up there at St. Andrews you get the same thing.

GD: Well, with my background, before I came to St. Andrews I worked for a company called Dames & Moore doing contract land archaeology in Arizona.

GS: So you're quite familiar with what I'm talking about.

GD: Exactly, and I see a lot of parallels, the problem being that there are different laws and different jurisdictional problems that shipwreck sites have that land sites don't have and that is what is really muddying the waters.

GS: Right.

GD: I think that's it Greg, you've answered all my questions. I appreciate you taking the time out to speak with me.

GS: No problem, and if you have any other questions give me a call. The one thing that I've not had a chance to really elaborate on as much as I would like to,

and I'm hoping to put together a paper on this in the not too distant future, I've touched on this in both of the papers I've sent you, is how is it so easy for... in fact one of the most.. how shall I say this politely.. aggressive of the archaeologists in trying to prevent any commercial access has a huge collection of fossil trilobites.

GD: Yes, I remember that in your article and that's true, you are absolutely right.

GS: With fossils you may actually learn something about the way that we changed and the way we understand our own history. He does not see the parallel. Fossils are real easy, because every fossil is unique, but when you extend it to coins and stamps and antiques, what are we going to do, every time something turns 100 years old we're going to put it in the care of the government in case somebody needs to look at it one day?

GD: I can say from first hand experience that for land sites the government agencies like the BLM and Forest Service, while they admittedly have a hard job, do have some dire shortcomings when it comes to the management of cultural resources.

GS: And I think that on land you can consider.. I think people like Paul Johnston have developed their preservation ethics based on land-based archaeology, because you really don't have the same threats on land-based archaeology. You can put a fence around something. You don't have shrimpers or beam trawlers tearing through them. You don't have, and I've heard all the arguments about stabilization, but I've seen first hand what happens to these wrecks year by year and they aren't stabilized. Go ask John Broadwater about the Monitor. John, who has the responsibility of trying to keep this thing...trying to preserve it to some extent, sees huge deterioration every day. When anybody has been able to look at wrecks and chart the deterioration on a shipwreck they deteriorate terribly and that isn't even bringing to bear the damage done by trawlers and things like that. You don't have that same problem in a national park, especially if it is a buried site.

GD: I think a big factor is, and you hinted at this too, the visibility of these sites, underwater sites, is out of the public eye, so if you are a trawler out there you're not going to get caught because there is no one around so you're just going to go through it.

GS: That's right. It's in the way of you making money.

GD: Yeah, it's a constraint.

GS: And there is, as I mentioned in the one article, no middle ground between the trawler and archaeologist. Its amazing to me that the entire debate is centered on the commercial access, which is just a fraction of the underwater cultural heritage of the world and all the energy of the archaeological community is focused on the commercial guys as opposed to the dredgers, the port construction operations, and the fishermen, who account for much of the damage. The difference is I believe the archaeologists don't want to take on those interests and I think politically they know you can't take on commercial fishing industry. It really sucks when that is how they make their decision. At the UNESCO Convention they recently changed it, it was originally directed at any activity that affected underwater cultural heritage, and there was a move by Robert Grenier and the Canadian delegation to change that to activities directed AT underwater cultural heritage, specifically directed at the commercial shipwreck explorers and it eliminates everybody else who has access to or causes an influence on shipwreck sites. What's the deal with that? Oh, lets protect it against the people who are out to get these 50 or 100 shipwrecks at the same time your losing 50 to 100 wrecks which are being torn apart every year by this other group which we are going to completely ignore.

[SECTION OF CONVERSATION BETWEEN GREG STEM AND MYSELF OMITTED]

But I think all we can do is keep plugging away at the middle ground and at the end of the day its not about what you say its what you do, and we just have to keep

working on these projects to show that they can be done the right way and slowly but surely I think we will change the minds of a lot of people who thought that I couldn't be done right.

[FINAL SECTION OF TAPE OMITTED - END OF INTERVIEW]

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